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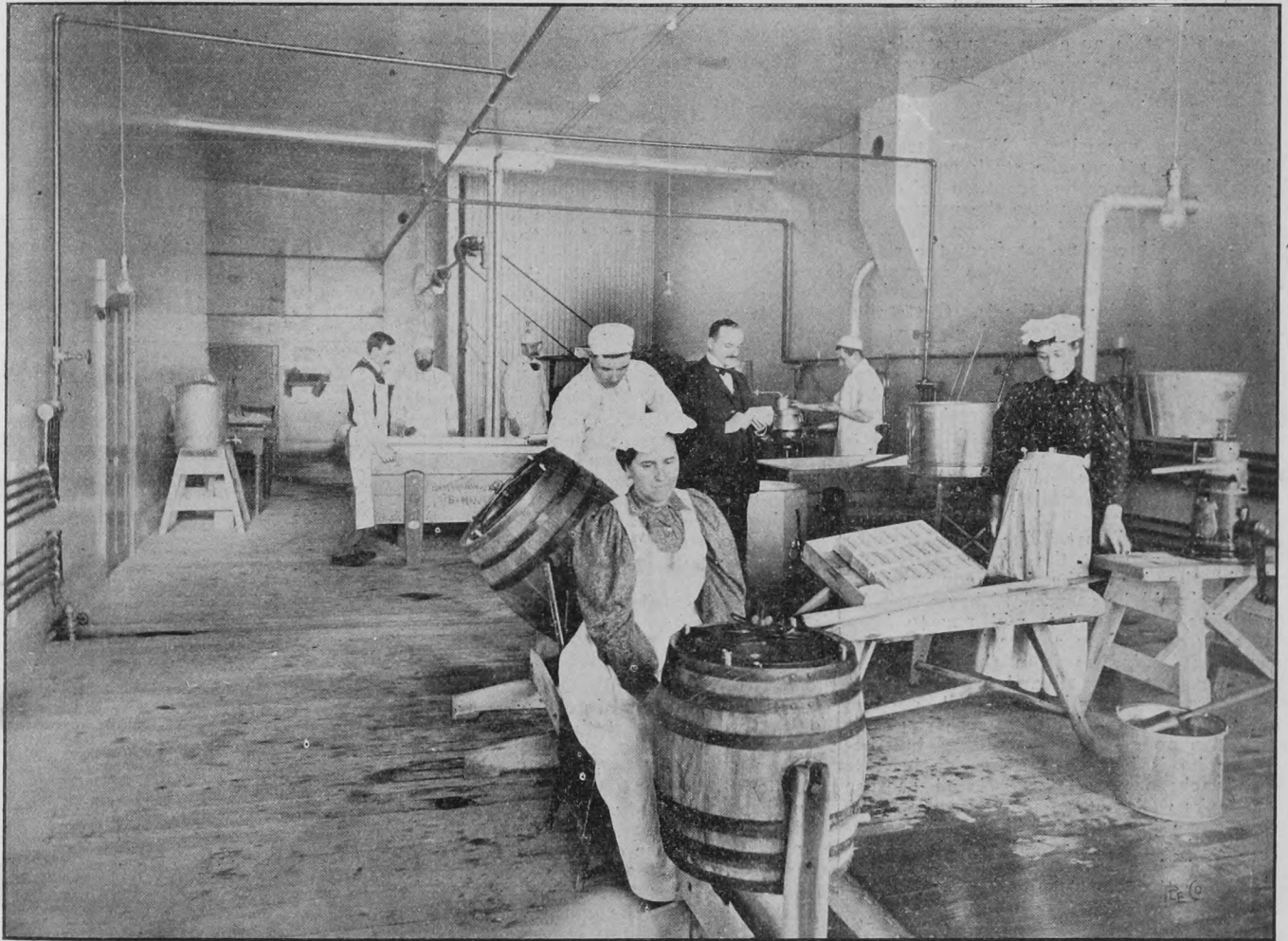


Stock Raising a Necessity to Agriculture.

By Rob Roy, Campbellville, Man.

starving the belly to clothe the back process, so that the building improvements, with their apparent increase of the value of the holding, are largely, if not in some cases entirely offset by the impoverishment of the soil. If we would continue to prosper in our wheat growing operations; if we would conserve the fertility of our virgin soil and recuperate the energies of our wheat-exhausted land, so that our farms will continue to pay a profit on their cultivation, we must give stock raising a more prominent place and more systematic attention in our farming operations. Summer fallowing does not hinder but rather helps to a more thorough ex-

who is growing grain crops on the same land right along, I would say stop and think. If your farm has not already weakened, you know that it must some day. Picture to yourself what it will be like say five, ten or fifteen years hence with your last patch of virgin prairie broken up and getting pretty well on the down hill road. "The prudent man foreseeth the evil and hideth himself." The prudent man, as a preventive in this case, should, I think, set about establishing a herd of cattle. The first thing necessary is that the herd should not only prove directly profitable in the returns secured from milk and beef, but also that they



Manitoba Government Dairy School, Winnipeg. (Operating Room.)

Year by year the importance of stock raising to the successful prosecution of agriculture forces itself more and more on the attention of the Manitoba farmer, especially of those on the lighter soils. I noticed lately in one of the Winnipeg papers that an Eastern man, who had been visiting our province, remarked that we had a splendid country, but that the farmers were ruining it. Any one visiting the best wheat growing sections of our province can see abundant indications of the profitableness of wheat growing in the fine barns and dwellings of the farmers; but this prosperity is more apparent than real. In a majority of cases those substantial building improvements represent the impoverishment of the soil; a sort of

haustion of the soil's energies, as by summer fallowing the farmer gets two crops for the labor of one. He is able to more thoroughly exhaust the land before he is forced to face the question of how is the land to be made yield a profit for labor applied. Although the annual returns get each year more or less rapidly smaller, still the working expenses continue the same, so that this shrinkage is a dead loss annually, and also a loss of capital owing to the deterioration of the soil. Every bushel per acre of shrinkage in our annual wheat yield means, roughly speaking, an annual loss of 50 cents per acre, so that a shrinkage of from one to five bushels per acre means on a half section farm a very serious loss. To the man

should be handled so as to assist in keeping up the fertility of the farm. Pasturing the cattle year after year on the same patch of virgin prairie, while the manure is kept in the heap, does nothing towards keeping up the fertility of the cropped area. To secure this, we must have rotation of crops, the land alternately under grain, hay and pasture. We must also have buildings to house the stock. They need not necessarily be expensive, but they should be as good as our purse, our requirements and the profits of the business will warrant. Light, comfort, ventilation and economy of labor in cleaning and feeding are the points that should be kept in view. For my part where a good dry bank can be had, I prefer a bank build-

ing. The main points in its favor are convenience of access to upper floor. More pure air can be admitted and fuller ventilation given without reducing the temperature too much, than in a building on top of the ground, as the walls being pretty well sunk in the ground, the building is considerably warmer. Where stone can not be secured the walls should be lined with two-ply of rough lumber, with tar paper between. The tar paper will preserve the inner board from the moisture and prevent rotting. For convenience in feeding I prefer heads together. This also keeps the outer walls dryer than when the breath of the animals is thrown directly against the outer wall. For ventilation I prefer a good large shaft, with a slide at the bottom to regulate. Small shafts get froze up and have not sufficient draft. I do not believe in keeping the stable at a high temperature for several reasons. With a temperature of 30° below zero outside, I doubt very much if the atmosphere of the stable can be healthy when heated to a high temperature by means of the breath and heat from the bodies of the animals. Besides, animals kept in an extra warm stable are likely to do badly when turned to grass in spring when the season is cold and backward. To the grain farmer, with straw as his main dependence for fodder, a cattle stable is a necessity. When straw is hauled direct from the stack and put in overhead of the cattle, and then fed direct from the upper floor into the mangers of the cattle, less chaff is lost than when the cattle are allowed to eat from the stack. Besides, wintering cattle at the straw stack and on straw alone comes wonderfully near being cruelty to animals. Oat straw, with the addition of a very few pounds of chop, makes a splendid food for growing cattle. The warm stable and a few pounds of chop daily makes the odds between a poor animal and a good one, and very often between a live animal and a dead one. The stable also provides for saving the manure. The horse manure should be built several feet deep on the bottom of the pile and the cattle manure put on top of that. The horse manure will heat, and rot the whole pile. To begin the herd, the best cows within reach should be secured. They won't be all alike good, and it will pay to keep close track of them and replace the poorer ones by heifers from those that pay their way at the pail and prove the best breeders. In selecting the bull, get the best you can afford, and be sure you can't afford a poor one. Don't buy a bull because he is handy to home, or because he is cheap. Don't be satisfied because he looks well, but satisfy yourself that he has come honestly by his good appearance. See his sire and dam and as many more of his ancestors as you conveniently can, and you will be better able to estimate his probable value as a breeder. If he has already bred, see his stock. If you hand-feed your calves, the extra early ones, when old enough to eat, before grass comes in spring, will receive more benefit from some turnips chopped fine than from grain. Don't be in a hurry to take the milk off them. It is uphill work for the young calf contending against hot weather and flies. And when those troubles are past, if you don't stop his milk supply he will begin to show really good returns for your care. Don't feed cold milk. As the nights begin to get cold put the calf in at night and be ready with some hay and some Globe or Aberdeen turnips to supplement the failing pasture and milk supply. If you have not turnips enough for all, separate the smaller and later calves and any unthrifty one, and give them a few turnips, and continue them all through the winter if possible. Aim to keep your young cattle always gaining. It is not necessary that they

should be heavily fed on rich foods, but the food should be sufficient for thrift and steady growth. Provide something for them when the pasture begins to fail. Have some grain or rape sown on summer fallow, or some turnips on breaking, and this, with the after-grass, will keep them going right along until winter sets in. Don't put off fixing up your stable and getting your cattle in until they have had a severe pinch. Never let them look behind. Be sure and feed right on in spring until the grass is good enough to carry them along without loss. This may seem like a lot of trouble. So it is; but if you wish to succeed with stock, you must lay your calculations to take trouble. But you will have larger and better cattle, and that means more pounds and more money per lb. and payment for all your trouble. Also a regular annual supply of good manure to apply to the land. Besides cattle raised in this way will come into winter quarters at 2½ years old in such good condition that it will take comparatively little grain to fit them for market.

Stock Raising Successfully.

By F. W. Skinner, Kalepwe, N.W.T.

To be a successful stock raiser, a man should be kind to and have a natural love of animals, select a favorable location for his ranch, and endeavor so to breed and feed, that his produce each year is an improvement in build and thriftiness on his last year's stock. In locating a ranch, an easily accessible water supply, wood for fuel and shelter, hay and pasture land, some of which is capable of producing grain and fodder crops, and neighbors not closer than three miles, are great advantages. Given these conditions to an industrious, thoughtful man, and stock-raising will be found an agreeable, healthy occupation, surer and more independent than most other ways of making a living. The number of a man's herd should be influenced by two conditions, viz., by the depth of his pocket and by the quantity of winter provender which he is able to provide, always remembering that it pays better to be under-stocked and have a little feed left over, than to over-do it and nearly or quite starve some of the herd before spring. When plenty of hay is available two tons of good hay per head for a mixed herd of cattle (big and small) will, with care, put them through the winter in good shape, and they will do well loose in the stable, providing they have been dehorned; or, better still, have had the development of their horns destroyed when three or four days old with caustic potash, thoroughly rubbing the embryo horn for three or four minutes. At this age with the caustic potash is a much easier and more humane way than the practice of dehorning. To have good hay, it must be cut during July, or before the seed ripens. In cases where the provision is to consist of mixed feed, it is better to have the animals tied, as it is hard to feed meal equally to loose cattle. Commence the winter with your worst feed, and end up with the best, as animals will not thrive on part straw and part hay ration, unless cut and mixed; feed the wheat straw first, and, if possible, feed a little bran or chop each day. Then use the oat straw, and finish the winter with the hay. In all cases endeavor to feed well enough to bring the cattle out in the spring in as good condition as they start into their winter quarters. Build high-pitched, well-lighted stables, with sufficient ventilation, keep the animals clean, and give them a bed to lie down on. Salt is not necessary in districts where alkaline hay meadows abound. Keep a pure-bred

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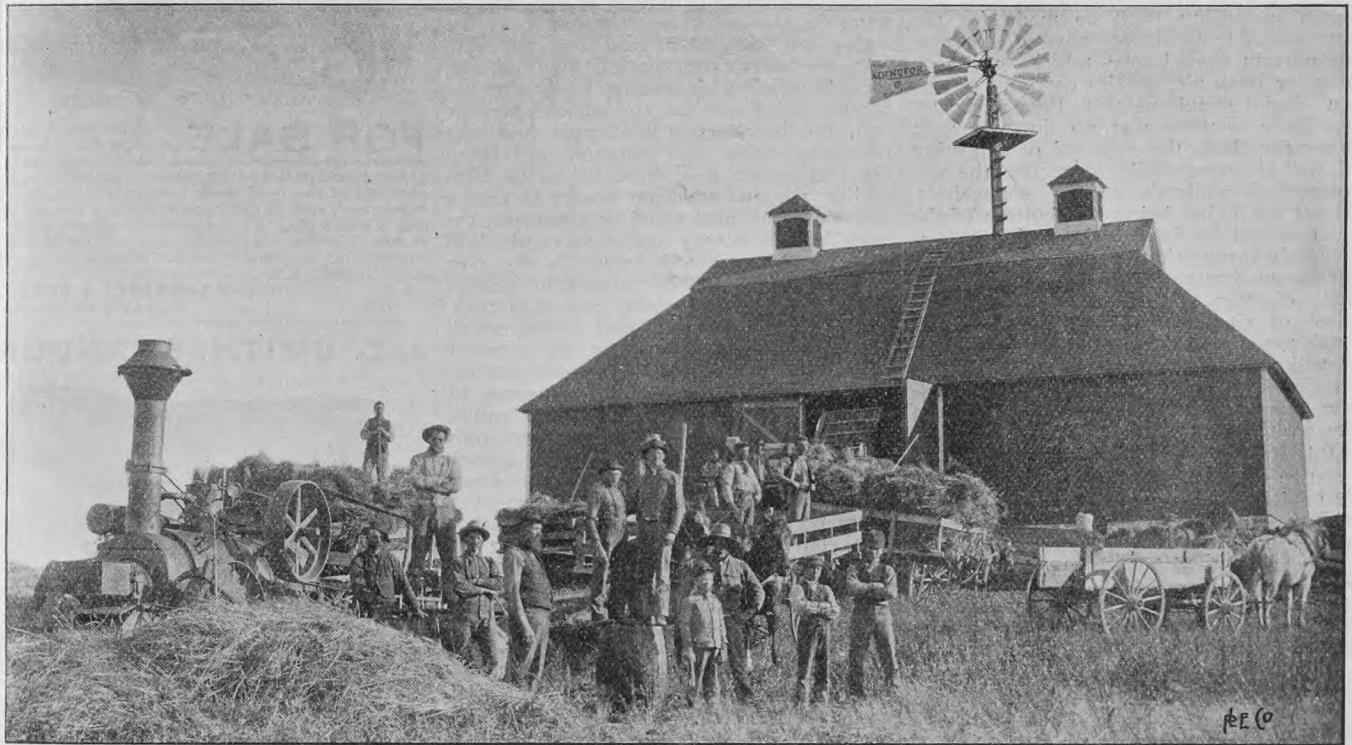
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bull, with a good wide level back. In selecting, the average rancher would be surer of what he was doing, if he bought a 2 or 3-year-old bull, as younger ones do not always develop as their purchasers expect. Do not buy old cows when starting a ranch, nor allow young heifers to calve before three years old. Cull out and dispose of all young females that do not come up to your standard. A good winter water trough, which will keep the animals from getting their feet in and spoiling the water can be easily made with logs, built up about 2 feet high and chinked with wet snow, and a good way to make a winter hay-rack, when the sleigh is not required for other purposes, is to take off the sleigh bunks and bolt two cross pieces the full width of rack on in their place, when, being low down, they will not tip over and you can draw big loads.

use or for export beef, instead of only being worth from \$15 to \$20 when two years old, they would bring \$25 to \$30. Thus, by saving one dollar at the beginning, there is five or more lost in the end. With regard to the care of stock. It is best to have young stock come early in the spring, for then there is the flush of grass coming on, and the dam will have more milk than at any other time of the year. The average farmer has not got warm enough stables for calves to come in cold weather. Young calves ought to have flax seed meal in their milk if raised by hand; also a little green feed in fall. Then in the late fall and winter they should have hay, a little chop and roots. Every farmer should have roots for his stock in winter, they keep cattle in a good thriving condition, and give them an appetite for their other feed. Even horses relish a turnip once a day as much as a feed of oats. I think turnips amply repay us for the trouble of cultivating and harvesting them. It all de-

it much better to have your straw stacked near the buildings to feed inside in cold and stormy weather. On fine days let out the stock for exercise and fresh air, allowing them to eat at their leisure in the shelter, instead of roaming over the prairie exposed to every wind that blows. A good way to get up a large amount of feed, and at the same time save considerable driving backwards and forwards, is, while stacking in the fall, every day at noon and at night bring in a load or two, as the case may be, of the grain cleanest from weeds to stack for feed. You will be surprised in how short a time it takes to collect a large setting. If farmers, instead of putting in wheat on low ground, and, after it is too late to come to maturity before frost, would sow barley and feed it to cattle, they would make more in the long run, not to speak of the good that manure from stock so fed would do by enriching the soil, so giving back in return an increase in the number of bushels per acre wherever put.

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Threshing Oats on the Farm of Wm. Ryan, Ninga, Man.

About four miles south of Ninga is located the farm of Wm. Ryan, who has erected a very handy barn. The foundation (which is used as a stable) is built of stone and is nine feet high. The barn on top is 13 feet high, with a driving floor. The feed is put down into a hallway through shutters, and the machinery is all run by a windmill. In the above illustration they are threshing oats from the stack, putting the straw into the barn by means of a stacker, which hides from view the foundation.

Care and Raising of Stock.

By Sub, Nesbitt, Man.

The first thing to bear in mind is to start with the right kind of stock, and we never will have them as long as we breed to scrub sires, more especially bulls. It seems to be the prevailing idea of a great many farmers of Manitoba, if they just get their cows in calf is all that is required or needed, never looking ahead at what the future results will be, or for a moment considering that the coming stock will not be the kind required to build up a herd such as it would be if bred from a thoroughbred sire. We often hear farmers saying when they have a cow or heifer when they do not intend keeping their calves except for beef, "I am not going to pay one dollar and a half or two dollars for a calf when Mr. So and So only charges fifty cents for the service of his bull." This is just where the great mistake is made. If they were from a thoroughbred, whether kept for one's own

depends on the way young stock is fed the first winter whether they will make profitable animals or not. If colts or calves are let run around a straw stack or fed nothing but straw all winter, they will never amount to much, for once stunted, it is hard to gain up again. Farmers make a great mistake in allowing their stock to run outside all weathers in winter. How often, when driving through the country, you will see at almost every farm both cattle and horses out picking their living on the prairie or at straw piles. If you ask these same farmers why they do not stack their straw at the buildings, they say there is too much danger from fire while threshing. Very true, there is danger by threshing around the buildings, but if the settings are placed so that the engine can be set at the north or south side of the setting, the wind is most generally blowing from the west, there is not the same danger from sparks setting fire to the straw. Have one or two barrels of water ready, throw a few pails around where the engine has been sitting, and with proper care you will find

Ventilation.

By J.B.K., Fairfax.

There is an idea prevalent that a ventilation shaft must come within eighteen inches of the floor to be effective in carrying off the carbonic acid gas, owing to its specific gravity. Now, if the weight of carbonic acid gas brings it to the floor, the same reason would prevent it ascending a shaft, no matter how close to the floor. But is this so in practice? When the heated breath is expired, which contains only a small portion of carbonic dioxide (about five per cent. by measure), it ascends instantly, because it is, as a whole lighter than the air around it; and the carbonic acid in it does not tend to separate from it and fall down by its superior weight, but by the law of diffusion of gases, seeks to spread itself equally all over, and would do so, though at first it were lying on the floor. "Stonhenge," in his work on the horse, says on this point: "There is a very common notion

that no ascending shaft will remove the carbonic acid gas, which is one of the results of respiration, because its specific gravity is so great that it lies close to the floor. This, however, is a fallacy in practice, though perfectly correct in theory, because all gases have a tendency to mix rapidly together; and hence, although the weight of pure carbonic acid gas is so great that it may be poured from one glass into another, yet, as it is given gradually off by the lungs, it does not remain separate, but mixes with the bulk of the air in the stable, and is carried off by it. For this reason there is not the slightest necessity to admit the fresh air near the bottom of the stable, as is sometimes contended for. If it is attempted, nothing can prevent a draught falling upon the bodies of the horses when they are lying down, and they inevitably catch cold. If the upper regions are kept pure, the whole air soon mixes."

I have yet to find a better system of ventilation for Manitoba than the ascending shaft from the ceiling to the roof. No special provision need be made for the entrance of fresh air, for anyone who uses the upright shaft knows that it acts as an inlet for fresh air, besides carrying off the foul, if not simultaneously, then alternately. Even if there was no down current down the shaft, the removal of a portion of the air never fails to secure the entrance of a fresh supply somewhere. About six inches below the bottom of the shaft should be fixed a sheet of zinc considerably larger than the shaft to prevent the down draught from striking the animals directly. By a little ingenuity the sheet of zinc may be so shaped as to catch the drip, which is so annoying after a spell of cold weather. The shaft should also be fixed with a slide, so as to regulate the size of the aperture according to the weather.

Ed. Note.—In this paper the theory and practice of ventilation are very satisfactorily explained. Dr. Rutherford, of Portage la Prairie, commenting on the discussion on ventilation at Manitou, as reported in a recent issue of *The Farmer*, has some very pertinent remarks on the same question, for which we hope to find space in a future issue.

The Care of Brood Mares.

By J. G. Rutherford, M. P.

One often hears the remark that Manitoba is not a suitable country in which to breed horses successfully. While there may be in some ways more difficulty in raising horses here than in some other countries more favored as to climatic conditions, a larger share of the responsibility for failure rests with the breeder than is generally supposed. The mortality among both mares and foals in Manitoba is much greater than it ought to be, and while in some instances, loss is quite unavoidable, the death of either dam or progeny is very frequently directly traceable to want of thought or lack of knowledge on the part of the owner. In the first place, many mares are bred which, being needed for continuous work, have no time to do justice either to themselves or their foals. The settler who has but one team, and who stints his mare with the view of giving her a week's rest at foaling time, ought to at once remove temptation by dealing her off for a gelding. No mare should be expected to drudge from year's end to year's end, and at the same time develop, deliver and rear a foal. Animals so treated are almost without exception failures as brood mares and such methods can produce only disappointment. The man who stints a good mare, crowds her through a busy harvest, lifts an engine or

separator with her occasionally, rattles her back from the elevator, hauls wood and hay all winter over all kinds of roads, her only let-up being in stormy weather, when she stands tied up in a dark stable on hard feed, works her right through seeding, be the land soft or hard, and only removes the harness when labor pains make their appearance, is often the first to complain of the unsuitability of the climate for horse-breeding. The confidence of such men in Providence and in the procreative powers of the equine species is seemingly unlimited, for in spite of repeated disappointments they never seem to weary of repeating the experiment. The number of abortions and premature and difficult births among mares handled as above is very large, while the progeny, even if born alive, is as a rule scarcely worth raising. In marked contrast to the method just outlined is the pampering system, which is just about as unsatisfactory in its results. In this case the pregnant mare is kept entirely idle during the winter. She is in foal, and so must do no work, she must not leave the stable lest she catch cold, lest she slip, lest she over-exert herself by running, etc. Overfed with strong food, she becomes loaded with fat, the muscles become soft, the bowels and kidneys torpid, the circulation slow and languid, and when the foal arrives it is more apt to die than to live, while if anything occurs to render delivery at all protracted or laborious, the mare herself is very apt to succumb. Still more reprehensible, however, is the even commoner practice of pampering a mare until seeding commences, and then turning her, all unprepared and out of condition, into hard, exhausting work, when perhaps within a week or two of foaling. There is, however, a medium course by which a great deal of useful work can be obtained from a brood mare, not only without injury but with positive benefit to both dam and progeny. Steady—mark the word—not too heavy employment is even better for a pregnant mare than total idleness, but especially during the last half of pregnancy, it ought to be either one thing or the other, either the collar should be kept off for good, or it should be worn more or less every decent day. The frequent custom of allowing mares to stand idle on full rations for weeks, and then starting them off to the distant hay stack or wood lot, perhaps through snow belly deep, or straining with a big load over bare spots, cannot be too strongly condemned. Such treatment is hard enough on any horse, but is especially trying on mares in foal. It is responsible for many quiet little interments in the manure heap, and accounts for many mares proving "not in foal," when the expectant stallion owner puts in his bill. Every man who wishes to raise foals should have a yard well sheltered by straw if nothing else, in which his mares, when otherwise idle, may exercise themselves for several hours a day, keeping the muscles developed and the vital organs in full and healthy play.—Liberal.

Knittel Bros., Boisvovain, have bought from Dr. Rutherford, M. P., the imported Cleveland Bay stallion Ingmanthorpe Victor. This horse took first prize at the Portage la Prairie summer fair, also second prize at the late Winnipeg Industrial exhibition.

Last year, according to the Cincinnati Price Current, the United States killed about 25,000,000 hogs. The export was less than in 1879 and 1880, but there was a much larger export of hams than in any former year, and the export of lard was also greater than in any previous year. The total export of meats, including bacon, ham and pork, was 794,000,000 lbs., and of lard 591,000,000 lbs.

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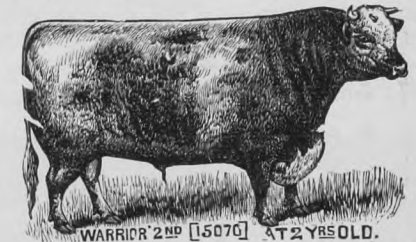
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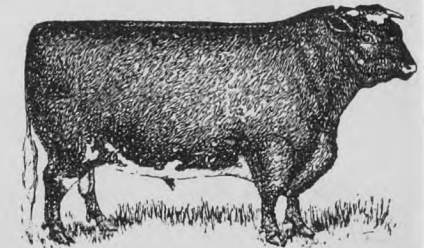
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Barn Plan.

In answer to the request of M. M. E. for a plan by which to remodel the arrangement of his barn, 40x20 feet, so as to have two loose boxes and the rest to suit cows, over 20 plans have been sent in. Eight of these are essentially the same, two loose boxes in one end, with space for 12 cows in two rows each, having a feed passage at the head of the cows and a centre passage from which they can be cleaned. Nearly everybody assumes that loose boxes, 10x10, are the correct thing, and they all allow 4 foot

through, heads to the wall, with manger 1 ft. 9 in. wide in front. If planning for a new erection, 24 feet wide would be much better than 20.

The Veal Calf.

A veal calf, as ordinarily understood, is an animal destined after a few weeks liberal nursing to be transformed into tender meat, eaten in a few days, and then forgotten. But there is another sort of veal calf sometimes sold at ten times the price of butchers' veal that the buyer

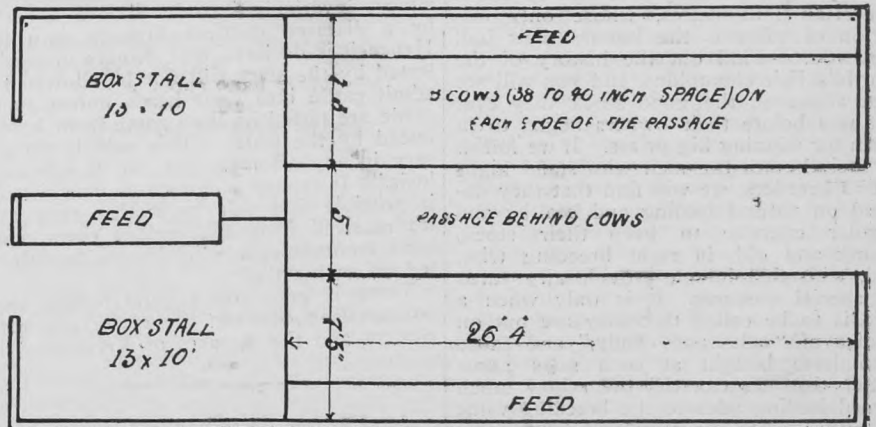
some rather raw aspirant at a fancy price. In two months more his own father could hardly recognize him. He goes to pieces, in part or in whole, and the reason is not far to seek. He gets all he can drink for half a year or more, and if one cow fails to keep pace with his appetite she gets help from a second, and the calf gets to be a cracker and very much talked about. But there is a difference between blubber piled on in that way and solid muscle, and when the weaning process is started there is no capacity to digest the more solid nutriment which ought months before to have been gradually introduced as part of that calf's feed. In short, gorging with rich milk is not the best way to raise a breeding bull, as the buyer soon finds to his sad disappointment. Let us mention, in passing, that skim milk is not suitable either. The middle course, a liberal allowance of milk as it comes from the cow, and a handful of ground oats fed dry, is the only safe nurture for any bull calf that is to make and maintain a good reputation in his riper years. If you want proof of the soundness of this contention, take a little trouble to trace out the history of all the champion calves you happen to know, and advise us properly if the cautions here suggested are superfluous.

A veal colt is, if possible, a greater fraud than even a veal calf, and if a horse of riper years is fed for veal, as has occasionally been done even in Manitoba, so much the worse. He may get a ticket at a fair, but as a getter of strong, hardy colts, the less said about him the better. An hour's exercise on a hot day would make him melt away by the pound weight.

feed passages at the head of the cows, which is rather much in so small a building. Different methods of feeding may be taken. Hay or straw in a loft above are convenient. T. J. Tokier, Purple Ridge, points out that at very moderate cost a lean-to, 10 to 14 feet wide, can be run along one side, thus adding more than a third to the available space. If that were done, loose boxes for young cattle, or even dry cows, could be made there, and the main building kept for tied-up stock. Loose cattle, if not quarrelsome, are better than if tied by the neck. Mr. Mellor's plan of turning the heads to the wall, with a middle passage for feeding and cleaning, may please some, and will provide space for four more cows. If a lean-to were used this plan could be followed all through the main barn, and a sleigh taken in at one door and out at the other. Some correspondents waste room, others put in more cattle than the room can hold. One competitor has a feed passage down the centre, but that allows too little space behind for cleaning. Little details in the fittings may vary, but the two plans here given we think best in principle. The parties whose plans agree in principle with that of L. G. Bell, Jr., of Qu'Appelle Station, are R. D. Sykes, Hargrave; D. Gilmour, Moose Jaw; Jas. Carson, Whitesands; W. F. Wright, Stonewall; C. W. Hugh, Pilot Mound; U. G. Force, Miami; Charles Laycock, Miami. Had we space in this month's issue, we would show other drawings received, some of which were very good, among the number being W. Breadner, Balmoral; G. F. Hall, Mekiwin; T. J. Tokier Purple Ridge; W. A. Tester, Ralphon; J. B. K., Fairfax; George Jacques, Lennox; B. P., Baldur; J. Vee, Dunmore Junction, and H. A. Carruthers, Touchwood Hills. Of three sent in by T. O. Mellor, Minnedosa, we give the simplest. That and Mr. Bell's, because of its superior drawing, we think equal in value, and shall ask M. M. E. to advise us which he will use. By following Mr. Tokier's suggestion, he could have a good handy annex at small cost. T. L., Rothbury, takes the centre passage clear

does not and cannot forget for a good many moons. He is usually pure bred and nursed with a view to winning prizes at shows and being sold thereafter with a red ticket to some confiding aspirant after breeding honors, who lays out his dollars and goes home rejoicing in the promise of great things to come. Once upon a time in the early days of Winnipeg exhibitions a few Shorthorn calves were turned into the ring for judgment, and to the surprise of the present writer, the only choice calf in the lot from a breeding standpoint was left out in the cold.

Henry Balman, a laborer in the tanneries at Bermondsey, Eng., has died of anthrax. He was employed by a firm of skin dealers in Bermondsey, and it was part of his duty to carry in his van quantities of hides imported from abroad. On going home one night Balman complained to his wife of an irritation on his neck, which he thought was caused by a boil. As it got worse he went to Guy's hos-



He did not stay there, and turned out one of the best known bulls in the province. He had been raised for breeding not for veal, with results corresponding. Not long ago an aspiring farmer, who owned a crack calf, was determined to beat a big rival and fed accordingly. He could not even get the length of showing; his calf was foundered, or something equivalent, and instead of \$100 and a red ticket, as the breeder hoped for, the local butcher showed an extra fine veal. Every grower of prize Shorthorns does not blunder in this clumsy way. The calf is "fitted" by a skilled hand, the red ticket is won, and the winner is turned over to

pital, where the house surgeon saw at once that it was a case of anthrax. Nothing could save the man's life, and he gradually succumbed to the venomous disease. Russian cattle are very subject to anthrax, and it is correspondingly dangerous to handle their hides. The English government has made very exhaustive inquiries into the question of anthrax, but they had not been able to discover anything that would kill it without injuring the skins and making them useless. At Bristol the men are compelled to wear a tippet, which fitted so closely round the neck that the men could not scratch themselves.

Handling the Bull.

Good bulls have not for many years been so scarce and dear as they are at this hour, and it requires no prophet's vision to see that they are bound to be scarcer and dearer for the next few years. The good grade bull has had his day, and, except among back-number stockmen, such animals are being dispensed with as fast as possible. As beef-producers for the English market we are ten years behind the Americans. They send their best there and keep out the culls at home. Therefore, they get the best prices, and we get the next best, just as we beat them hollow on cheese, because we put better work and material into our dairy output. They begin right with their beef production. Take one example. At Springfield, Ill., a Shorthorn breeder got burnt out a week or two back, and had to sell his stock. There were 26 Scotch, 34 Scotch topped females in that herd, from such bulls as Cupbearer, Craven Knight and Proud Archer. Nationality is of small account except for the qualities it represents. But these cattle represent the best thought and skill of the Cruickshanks, Marrs and Duthies, displayed in the production of a typical farmer's bull, beef first, but always milk enough to ensure breeding tendency, sometimes enough milk to rear two strong bull calves from one cow. These level-headed American breeders do not rely on breeding alone. They know how to take the most out of a good bull when they have got him, and most of us don't. "Aye, there's the rub." We don't, or, if any of us know it in theory, very few of us put it in practice, and just because of this our very best bulls, as a rule, go soonest to the bad, so far as their breeding value is concerned. Early maturity and easy feeding are the main qualities in a bull that we wish him to transmit to his offspring, and these are the very qualities, which, if he is in unskilled hands, are sure to lead to his early ruin as a breeder. If we have fitted him once or twice to win red tickets we may expect his breeding powers to go all the sooner to waste. The champions of the English show yards are mostly sold now to South American millionaires, whose only criterion of value is the honors their bull has won. Find out the history of the World's Fair champions, and you will see that about all the good stock they ever left was before their owners began to fit them for winning big prizes. If we follow to their homes the men who stand highest as breeders, we will find that they depend on natural feeding and healthy and regular exercise to keep their stock, young and old, in right breeding trim, and, with that intent, provide airy yards or special pastures. It is only when a sale is to be called that they are put on a diet of "cake and candy," and those who have bought at such sales know better than we can tell them how much forced feeding adds to the breeding value of either male or female. The more concentrated the feed the quicker will the vital force of the beast be burned out.

What is the history of a lot of the bulls we buy here. A good man in the east raises such a beast from good parentage, gives it milk as it comes from the cow, a daily handful of oats to harden it flesh, and plenty of natural exercise to wear out effete matter, and if he is a topper they put a few good old cows to him. Then we buy him for \$120 or \$150 as a short yearling. For all that money we want something back as soon as possible, and put him to twice as many cows as he ought to have at his age. His quality is apparent and we rush his feed at show time. All this time, perhaps, he stands in a stall of a half-lighted stable, or, as

some, who ought to know better, have allowed him, he has run with the herd, a still shorter and surer road to ruin than to stand alone in a dirty, dark barn.

It does not matter much which course we have followed. At five, or sometimes sooner, that bull, with all the markings in him when we got him of a crack breeder, is about played out, and goes at beef price either to some poor man, who knows no better, or, knowing, takes his chances, or to the export dealer. And we go back east for another to be worked off the same way. The more prizes he has got the more likely is he to be a failure as a producer of choice breeding stock. Exhaustion through premature work, or fatty degeneration from overfeeding and want of exercise, are the two rocks on which our bulls, as a rule, founder. By a different course of treatment they might last ten years or more and be landmarks in our breeding history. If you don't agree with this, try and get hold of somebody that knew a lot about Barmpton Hero and Indian Chief, and then come along and give us a talking to.

Tuberculosis Test.

The State Board of Agriculture of Vermont set itself to weed out of that state this disease. Nearly 18,000 cattle were tested and the cost for veterinary service was \$3,453, for cattle killed from herds, \$8,296, for cattle killed from droves, \$431. This shows that 4.3 per cent. of the herd cattle were diseased and only 0.6 per cent. in the droves. The average cost per head for testing was 27c. They called for a second test to make sure, and report that 105 animals have been killed the past year in herds where retests have been made, and that in the same herds 442 animals were killed at the first test, giving practically one-fourth as many on retest as on first testing. It is suggested that this result is due quite as much to infection from germs in the stable that was not thoroughly disinfected as to animals that did not react in the first test.

The board insists that tuberculosis is almost invariably introduced into a herd by a diseased creature brought into it. Hence it is declared that owners of herds tested by the state will not be allowed to admit cattle into their herds unless such cattle are tested or have come from herds tested by the state. "This rule is necessary in any effort to get rid of tuberculosis." It reports a few cases in which it is possible that skim milk that creameries received from tuberculous cows may have communicated the disease to calves fed on such milk.

There is generally a good feeling and co-operation between the cattle commissioners and the farmers of Vermont.

An Eastern correspondent writes to a Chicago paper: "In pure bred stock, many feel that Canada is on the verge of decidedly better times. Not in many years past has there been such an active demand for good animals. Buyers have not been so numerous at the big shows for a long time, and, in fact, the supply is not quite equal to the demand. If Canadian breeders in Ontario have good pure bred stock for sale and left on their hands this fall it is because the public do not know about them. In some of the breeds of cattle this is precisely the situation, while the demand for really good sheep and swine cannot be supplied with the present stock of the country. Perhaps no class of animals is in greater demand than good feeding cattle."

J. A. S. MACMILLAN

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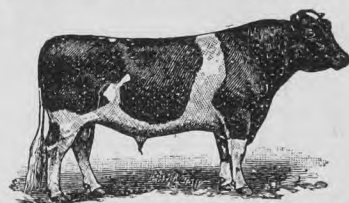
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One rising 2, out of Sadie Teake's Beauty, sister to Daisy Teake's Queen, price \$10. Three nearly 1 year, price \$30. One 4 months, a beauty, out of Daisy Teake's Queen, price \$50. One 2 weeks, out of Sadie Teake's Beauty, price \$20. Scarcity of feed necessitates selling at these prices.

JAS. GLENNIE,

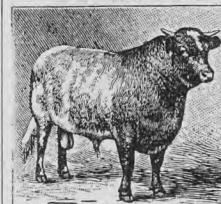
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Training the Colt.

Scarcely a day passes, we can hardly open any newspaper, in which we do not hear or read of some mischance due to half-trained horses. It is only the cases that end seriously, sometimes fatally, that find their way into the newspapers, upsets and damaged harness or wagons are rarely heard of more than a mile from home. It is when the imperfectly trained horse gets into a large town that he makes his most noteworthy displays. A street car, a bit of loose paper in the air, any strange sight or sound, and he is off on the fly, with a big bill of damages that if all reckoned up would come to more than he is worth. If such accidents were inevitable, there would be nothing to do but grin and bear them. But the whole thing comes of want of proper care in the early stages of that horse's career. The nervousness and terror that make him ready to fly from every strange sight and sound are only the survival of the instincts of self-preservation transmitted through countless generations before he became the servant and friend of man. Only get it fairly into that scary brute's head that

gently applied, will accomplish vastly better results in much less time, and with much less loss of the best points of the animal. It is possible to do most of the training needed by any farm horse at home on the farm, at slack seasons when little other work can be done, and no more profitable work could be done at any season than to make of an untrained colt a safe and trustworthy animal. It is because of the importance of this work to the comfort and safety of every man who has occasion to handle a horse that we gave in December issue of this paper a graphic and interesting report by a skilled writer of the way he educated his driver, and got over its natural inclinations in a short time. Every horse cannot be trained in the same way or with equal certainty as to results, but the man who will study his work and exercise tact and patience will find it one of the best paying jobs that can be done on any farm to set to work on the lines laid down by Professor Gleason.

Don't look a gift horse in the mouth. Sell him for what you can get and let the other fellow look on.



One Hundred and Ten Grade Cattle Wintering Out on the Farm of Malcolm Ross, Cook's Creek, Man.

his master is his friend and can be trusted to know what is safe for him, and the horse soon gets indifferent to every form of alarm. In the old country, for example, not one cart horse in ten would put its foot on a wooden bridge. Here every horse does it without a moment's hesitation. There is no difference in the nature of the animal, but ours is familiar with the sight and sound of hollow boards. There is a great difference in the brain power and educability of different horses fairly attributable to heredity and environment, but any average horse can be trained to familiarity with any ordinary source of terror, and once taught the lesson is never forgotten.

It is of great advantage to both horse and man that the lesson of confidence and fearlessness should be early learned, for a horse seldom or never forgets a scare of any kind, and never fails to look out for it in the same place and in the same circumstances at any place. "Learn young, learn fair," is far more true of the horse than the human pupil, and nearly all the difference in value between a safe horse and an unsafe one comes from the superiority got as the result of early training. "Breaking" is an out-of-date and brutish way of getting at the desired result, while individual training, intelli-

Quality in Live Stock.

The National Live Stock Association of the United States met recently at Sioux City, Iowa, and W. H. Thomson, their president, gave the members, as the fruit of long experience as a dealer, some very valuable suggestions, from which we cull as follows:—

"Our success lies in the quality of our products; therefore, let us never lose an opportunity to improve more and more the quality of our output until it is recognized and accorded the palm of superiority it so justly deserves, unequalled by that of any other nation upon earth. The time is fast approaching when the quality of our productions will be the standard of admission to foreign markets. It should be the aim, not only of the producer, but also those who are interested in the exportation of live stock and meat food products, to know that none but the very best in quality is sent abroad."

That, let us remark, is what the wide-awake American exporters are doing already, and as a necessary result their beef always ranks a good deal higher in quality and value than the poorly finished beasts we Canadians send over to England in competition with them.

"Undoubtedly the beef producing industry is the branch of agriculture justly claiming the most serious consideration, and it is of more importance to our constituents than any other. It is important, because large amounts of money are represented in the raw material; it is important because of the great expense in caring for, furnishing feed and fattening for market; and let me right here remind you of the fact with which you are all doubtless familiar, that this latter expense is about the same per head on fattening a common or inferior class of cattle as it is on the grades or thoroughbreds. The results derived from feeding a given quantity of corn or other fat-producing food to a given number of cattle as far as increase in weights is concerned may be practically the same with common cattle as with grade or thoroughbreds, while the market value of the matured animals is from 50 cts. to \$1.50 per 100 lbs. in favor of the latter, which fact should convince the producer that in order to obtain the best price for his feed he should feed it to the better grade of cattle."

President Thomson must have had much less acquaintance with feeding than with selling cattle. Every observant feeder knows that the great drawback to scrub and coarse bred cattle is that they put away a great deal more food to much less purpose than do the higher grades, and when crowded with good feed very frequently "go off their feed" just because they are not built the right way.

"It occurs to me that there are several important changes in raising cattle that should be made, and which we should recommend the producer to make in order to increase the production, to wit:

"(a) Gradually getting rid of the common or mongrel class of cattle by crossing the breed with the best sires to be obtained, and continue this cross breeding until we have nothing in this country but the half, three-quarter and pure breds, the latter being desirable for breeding purposes principally, as this animal is not so profitable to the producer as the half or three-quarter strain, which, generally speaking, is a better proportioned and more desirable animal for food than the pure bred.

"(b) Prepare and market your beef steer either as a yearling or two-year-old; in no case keep him beyond the age of three years. It is during these years that the sap is in the beef, and, if fat, the animal is in the best condition for market he will ever be, or you can ever make him. There is no surplus of bone or fat that matures after the third year that adds to his marketable value, and then again, after that time a greater quantity and heavier feed is required. The heavy cuts of beef that were once the demand are fast losing their prestige, as now the general inquiry and demand of the consumer is for prime, young lightweights or beef, and every feeder knows that the older the steer it takes just so much more feed to put a pound of meat on his frame. Early maturing quality is becoming more and more the article for the best class of trade and the sooner this is taken into account by cattle raisers the greater will be the chance to make money out of their business."

Manitoba had, by the last bulletin of the Agricultural Department, 36,680 sheep. In the New Brighton stockyards, which are close to the great elevators of Minneapolis, there are 165,000 sheep being fed on the cleanings from those elevators, mostly in the shape of small wheat and weed seeds, which sheep eat with a relish. That, with a little prairie hay, puts them in prime condition in a short time.

Is Meat Injured by Freezing?

Dr. Brown, an expert connected with the Agricultural Department of Victoria, Australia, has been engaged for some time in experiments in order to determine whether or not meat is affected in any injurious manner by freezing it for export, and whether the freezing has anything to do with the condition of meat known as bone-stink. After dealing in a technical manner with the chemical constitution of meat. Dr. Brown reports on the effect of cold on carcasses, and the following extracts are interesting: Extreme or moderate cold produces no chemical alteration in meat. The carcass of a recently slaughtered animal placed under suitable conditions in a cold chamber can be kept there indefinitely without decomposition, so long as a sufficiently low temperature is constantly maintained. Cold, although producing no chemical alteration, certainly produces a physical change in the meat. After freezing and then thawing, the tissues loosen and soften. Cold renders meat tender and capable of easy digestion and absorption. Bone-stink is occasioned by putrefactive agency. Putrefactive organisms have reached the seat of the change, and by their growth they produce chemical alteration in the meat, imparting to it a disagreeable taste and offensive odor. In those cases of bone-stink where the stink was detected in frozen carcasses only after thawing, the meat has commenced to undergo the putrefactive change, or to go bad as it is popularly termed, before being subjected to the process of freezing. Cold arrests putrefaction, but does not destroy it. Then, as soon as the meat is removed from the cold chambers, and thawed and kept at an ordinary temperature of atmosphere, putrefaction, which may have been arrested for months, again begins, and progresses more and more. Bone-stink cannot possibly be created by the processes of freezing. If the carcass was perfectly sound and wholesome when placed in the freezing chamber, then no matter what length of time it is kept there at a low temperature, it will, when thawed, be found to have suffered no deterioration.

With regard to the wholesomeness of frozen meat, Dr. Brown reports: Frozen meat is not less wholesome than meat not so treated. In fact, frozen meat is tenderer and more easily digested. The chemical constitution of frozen meat is not different to that of fresh meat. It may contain less water, but the water derived from ingested meat has no greater food value than water taken as such. The extractives are not much less in general amount, and even if they were their food value is not very great. They are flavoring agents of meat. Frozen meat has a flavor, and it is practically impossible for one unaware of the fact to decide by the taste that the meat has been frozen. The food value depends on the myosin and serum albumen, and they, in properly frozen carcasses, are practically undiminished. If frozen meat be boiled, it should be plunged into boiling water. The heat coagulates the albumen of the surface of the joint, and prevents the escape of the fluids containing the extractives, myosin, etc. In the process of roasting a joint, much of the water it contains is driven off by the heat, and there is also a loss of some of the carbon and nitrogen compounds. New compounds are formed, and these dissolve out of some of the staple constituents, which are not lost, but which are found in the gravy.

Don't take a bull by the horns. Take him by the tail, and then you can let go without getting some one to help you.

Band, Herd and Flock.

The Almonte Gazette says that Robert Huston, of Almonte, killed a 7-months' old pig which tipped the scale at 300 lbs.

W. Chalmers, Hayfield, writes: "I have recently sold a cow, 'Lady Love,' to J. & J. Chalmers, and the bull, 'Young Aberdeen,' to Jas. McFadden, Methven. Although only nine months old, he girths about 5 ft. 8 in., and is exceptionally well built, and will make a good one."

The colt will form habits of some kind at an early period. Do not allow bad habits to become fixed. It is easier to develop good qualities if the training is begun early. Both the muscles and the lungs can be increased in power and capacity as the animal is growing.

An English Shropshire ewe is reported on the authority of Alfred Mansell, the well-known breeder, to have died at an extreme age. She spent her life on a high, cold farm, was twenty years old last lambing time, and had reared thirty-three lambs, and during the whole of her life she had enjoyed absolute immunity from disease.

One of the handiest ways to keep pigs from crowding into the feed trough is to take an ordinary trough and a piece of wire long enough to cross and re-cross, so as to leave a triangular space, say 10 inches wide, at the broad end, into which each pig can readily get his feed, but cannot encroach on its companions on either side. Drive in a staple at each crossing. The wire does not hinder from pouring in the feed as wooden slats would.

When the Venezuela cow-boy wishes to catch a bull or cow for branding, or for any purpose, he rides alongside it, and with horse and bovine on the dead run, stoops from the saddle, grasps the creature's tail, and with a sharp, peculiar twist sends the animal rolling on its back. From the force with which it falls, the creature's horns almost invariably pin its head to the ground, leaving the vaquero time to dismount and sit on its head, holding the animal helpless to rise, while a companion ties its legs.

Wm. King, Oakley Farm, Carnduff, writes: "The two Shorthorn bulls offered for sale by me are Windsor 5th (22899), dark red, which I am selling to avoid in breeding. His sire was the well-known prize-winning imp. bull, Windsor (65771) 6456, which captured sweepstakes at Toronto and Ottawa, 1890. The other bull is Mina Duke of Oakley (23814), dark red, calved December, 1896, sired by Windsor 5th, out of Mina of Beresford. These bulls are both in good breeding condition, quiet, and sure breeders. I have sold all the Berkshires I had for sale, except one young boar, farrowed in April. Have sows due to farrow in February, March and April, which were prize-winners at Winnipeg, 1896. Some of my sales were as follows: A. & G. Mutch, Cottonwood, one boar; Jas. McClellan, one sow; A. M. King, Souris, one pair; Fred. Bowen, Carievale, one boar; Thos. Easton, Carnduff, one boar; Thos. Timmins, one sow; Chas. Bowen, Carievale, one boar. I have sold a number of Plymouth Rocks this last fall. My herd of Shorthorns (45 head) are coming through the winter in good condition."

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"My husband suffered with stomach trouble so bad at times he could not work. He has taken Hood's Sarsaparilla and it is helping him wonderfully. He also had a scrofulous humor but Hood's Sarsaparilla cured this and he has had no trouble with it since. My little boy, too, has been taking Hood's Sarsaparilla and it has given him a good appetite. We have great faith in Hood's Sarsaparilla." MRS. J. H. EDWARDS, 50 Edinburg St., Rochester, New York. Be sure to get Hood's because

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Is the best — in fact the One True Blood Purifier. Sold by all druggists. \$1; six for \$5.

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Kills Ticks, Maggots; Cures Scabs, Heals Old Sores, Wounds, etc., and greatly increases and improves growth of Wool.

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As it is desired to make this column as interesting and valuable as possible to subscribers, advice is given in it free in answer to questions on veterinary matters. Enquiries must in all cases be accompanied by the name and address of the subscriber, but the name will not be published if so desired. Free answers are only given in our columns. Persons requiring answers sent them privately by mail must enclose a fee of \$1.50. All enquiries must be plainly written, and symptoms clearly but briefly set forth.

Extosis on Colt's Jaw.

R. T. N., Hargrave—"Colt, rising two years, about a year ago a lump came on lower jaw, just where double teeth commence; now so large that colt cannot drink out of a pail except when full. No discharge. Was under veterinary treatment about a month ago, who said it was lump jaw and treated it with iodide of potassium, etc., and cut some of the outside off, showing a large growth of bone, like a sponge. The colt is no better. 1. What is the disease and treatment? 2. Is it contagious? 3. Was the vet. right in treating?"

Answer.—Lumpy jaw very rarely attacks horses. In fifteen years of active practice the writer has never seen a case except in cattle. Bony growths on the jaw are quite common in horses, and are usually caused by injury to the bone from a blow, or else from the presence of a diseased molar tooth. In either case the growth can be removed by surgical operation. The disease is not contagious, and if the tumor is properly removed there is no danger of its recurrence. The treatment was proper for a case of lumpy jaw.

Incontinence of Urine.]

Anglo-Saxon, Ridgeway: "Kindly tell me through your paper what to do for a heifer calf 10 months old. The last few days has been constantly dribbling, her hind quarters always wet. She has a good appetite, feeding hay and straw, drinks a pail of water a day. Also what is the best time for dehorning calves, and the best method of doing it."

Answer.—In the absence of any history of injury or violence to the heifer, the trouble is probably paralysis of the neck of the bladder, and will recover under treatment. Apply a blister to the loins and give, twice daily in a bran mash, half a drachm of powdered nux vomica. Continue treatment for two weeks if necessary.

Dehorning of calves should be done as soon as the horn makes its appearance. Take a stick of caustic potash, moisten the end and rub it over the little button of horn, and about a quarter of an inch of the skin surrounding it. If properly done, one application will be sufficient.

Vertigo—Staggers.

F. T. W., Carievale, Assa., writes: "I have a horse seven years old, which takes a bad turn once or twice a year, seems to lose power of his limbs and staggers, and would almost fall down; sometimes he starts to run and plunge, don't seem to be trying to run away; then, after the fit is over, he is all of a tremble and weak. Please answer in your next issue."

Answer.—A sudden congestion of the brain is the usual cause of vertigo in

horses, and is brought on by some unusual interference with the natural flow of blood to and from the head. A tight collar will produce it by pressing on the jugular veins at the base of the neck. So will an overloaded stomach at a time when active exercise is compelled. To prevent attacks, see that the collar is a good fit, and do not use the horse immediately after feeding. To cut short the attack nothing is better than bleeding from the jugular (neck vein), and dashing cold water on the head.

Fattening an Injured Cow.

Subscriber, Midway. "I had a cow 4 years old, had a calf running with her on the prairie. A dog passed between her and the calf. She made a mad rush at the dog, and stumbled over an ant-hill and fell, throwing her joint out in the hind leg up close to the body. She can get up and eats very well, but will not fatten. Have been feeding her barley chop twice a day and boiled barley once, with good hay and water. I have now on hand crushed corn and bran and shorts, also oats and barley. Will you kindly advise how to feed to fatten her as fast as possible, also how much to feed, and if I will require to feed powders. Is not thin now, just a little better than when I started to feed her."

Answer.—If your cow is in constant pain from the injury to her leg, you will find it difficult, if not impossible, to fatten her. Make her as comfortable as possible in a single stall in a warm part of the stable, and do not move her unnecessarily. Corn meal and bran, or corn meal and shorts should fatten her more quickly than barley. Do not give her much corn meal at the start. Begin with about a quart three times a day and two quarts of bran, and after she has had that diet for a week, increase the quantity of corn meal gradually, so as to avoid causing diarrhoea (scouring). If she does not eat plenty of hay, you may find it useful to dampen it slightly and sprinkle the meal over it. As long as her appetite is good you will gain nothing by feeding powders.

Veterinary Colleges.

Enquirer, Ferndale: "Could you tell me whether there is a veterinary college in Winnipeg, or which would be the nearest to Winnipeg?"

Answer.—There is no veterinary college in Winnipeg. The nearest, in Canada, is the Ontario Veterinary College, Toronto; McGill College, Montreal, is about the same distance away. In the United States there are several not quite so remote, Chicago having two of them. Anyone thinking of entering the veterinary profession should remember that getting a diploma is not the most important thing about it. There are many men, well qualified as far as the possession of the diploma is concerned, who are not able to make their salt in the practice of the profession. A thorough knowledge of the scientific as well as a good training in the practical work of the profession is indispensable to success, and a college should be selected, irrespective of distance, where such a training can be obtained.

Chronic Diarrhoea.

Subscriber, Findlay: "One of my oxen, as soon as I work him a little, takes diarrhoea, and consequently he gets feeble. He has very little appetite. What would you advise as treatment? He is about 11 or 12 years old."

Answer.—Procure from a druggist the following powders: Powdered galls, eight ounces; powdered gentian, eight ounces; powdered sulphate of copper, three ounces.



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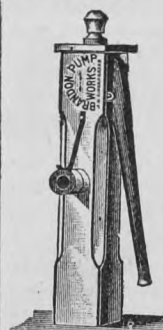
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Invagination of Bowels.

J. B., Fletwode. "I had a steer calf about eight months old taken sick a few days ago. He would keep getting up and laying down. Sometimes he would roll over on his side and kick; then he would get up and back up to the wall of the stable and kick, and turn round several times, and lie down again. He appeared to be a little swelled in the belly. It lived about forty-eight hours after being taken sick. There was no passage through it. We tried everything we knew of to get a passage through it, but nothing seemed to do it any good. It seemed gradually to swell more until it died. It seemed to shiver more or less all the time, and the stable is very warm. What was the matter, and what should I have done for it?"

Answer.—The symptoms described are those of inflammation of the bowels, resulting from a portion of the bowel slipping into the succeeding portion in a manner similar to a glove finger turned half inside out. This is an accident that happens sometimes to young animals, and is supposed to take place during sudden and unusual movements of the body in running or jumping. If the bowel does not soon resume its natural position it becomes swollen and inflamed. More or less complete stoppage of the bowels results and finally death. Treatment is of no use. Some cases have been successfully cured by surgical operation, but only in the hands of skillful surgeons.

Tuberculosis.

This disease has an unfortunate habit of getting into herds whose conditions and management ought to be, and as a rule are, models of what good stock ought to be and can be made. The central farm at Ottawa has of late had special attention given to it for this trouble. Several cattle were destroyed for this cause in the end of 1891, but the trouble with all these fine cattle is that being so well cared for disease does not run its course so rapidly among them as if they had been more exposed and less comfortably housed. In 1893 tuberculin was used as a test, and all affected animals were then killed, except five young heifers that were kept for the application of curative measures. Some allege that these were killed two years after, but this is not quite clear. Meantime, animals from this herd had been distributed among the provincial stations, and carried the taint with them, as subsequent tests and slaughtering proved. In the last investigation at the Central farm, 26 out of 52 head have been killed. At the same time the Kansas State herd has been tested, showing out of 60 head 17 killed and some doubtful. All the Polled Angus were found diseased, and only one out of eight Jerseys was killed. Here, too, the trouble is of old standing, and though on these and all other state farms the best means of disinfecting have been used, there is a suspicion that in this particular trouble disinfecting does not succeed. Costly herds, both public and private, have been ruined in spite of the best of care—perhaps of too good care. Warm barns, with a lot of cattle, young and old all together, higher feeding than common, and lack of hardening exercise and pure air are conditions strongly predisposing, and the warm air seems a choice breeding ground for the pest. A shrewd Yankee farmer thus discusses the trouble, and there is much force in what he says:

While reading an article on tuberculosis in Kansas cattle I could not help being reminded of a belief I have expressed before, that if those cattle had been given just about the treatment that the average farmer's cow receives, this tuberculosis, probably, would not have invaded the herd. As I see it, cattle that are most housed and pampered are most liable to disease, just the same as with people. The cry has been all along the line—papers are always full of it—"close up the cracks in the stable and poultry house, and save the food." "Boards and tar paper are cheaper than corn." "Keep the animal fat and he will laugh at the cold." "Exercise runs off the fat and wastes time and food."

Yes, this is all true. Yet, in my opinion, there is another strong side to this, and he who disregards it may expect to reap tuberculosis and plenty of other diseases. Pure air and water and plenty of exercise, coupled with honest coarse food, applied to man or any other animal, give good appetite, good digestion, good, unbroken, restful sleep, and is the best medicine that can be found to ward off disease—especially such a disease as tuberculosis. Yes, you can closely house the cow and stuff her with rich food, and "put on the fat," or increase the flow of milk, but are you following the laws of health?

The disease known as "blackleg" is another instance of the mistake of overfeeding. Here I have never known a thin calf to be troubled with this disease; but when it is "rolling fat," then comes the danger. Here, on the first appearance of the disease, we promptly starve, in food and drink, the rest of the calves, to prevent the spread of the disease. To summarize, over-housing, over-feeding, over-pampering, under-exercising, under-ventilating—plenty of fat, milk, degeneracy and disease. Housing only in the most inclement weather, more coarse and less concentrated food, plenty of exercise, pure air and water—less fat and milk, more vitality and health. I suppose that some one will promptly tell how I am much mistaken in this talk, but you have here, for what it is worth, the "other side," the side that seldom appears in print.

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Pipestone and Reston.

It is now more than a dozen years since I dropped down from Virden to spend a day or two among the early settlers on the Pipestone, and I had the other day an opportunity to repeat the visit. It is about 16 years since old man McKinnon, who in the early days kept a stopping place at Three Creeks, south of Austin, began to feel that country rather crowded and dropped down to this valley, where he squatted in a solitary patch of bush a little north of what is now the town of Pipestone. He had there all the room he wanted till William and James Lothian, from Berwickshire, went in shortly after and took up homesteads. The land was good and the liability of low valleys to frost not being so well understood then as now, a good many homesteads were taken up in 1882. The settlement is strongly Scotch, some from the north, and the Lothians were soon joined by relations from their native county. The long haul to market and an occasional frost in harvest discouraged a good few, but the Scotch tenacity of purpose would not be baffled by occasional drawbacks, and the most of the men I saw there back in 1884 at to be found there still, with additions of the same type. Dr. John Brown once said that a man who went out into the world with five good axes could hew his way through anything. Their names were aud-ax, cap-ax, effie-ax, perspic-ax, ten-ax. These axes were pretty well distributed among my old friends on the Pipestone, and, in spite of trials and discouragements they are there for good and very satisfied with their lot as they well may be. Let me mention names from my own neighborhood, some of whom I knew before they had ever heard of Manitoba. The Forke family, father, four sons and son-in-law, own 2,700 acres of land, all well suited to their wants, 60 horses and 125 cattle, besides small deer that I need not mention. Next season this stock will be considerably increased, and as they work in combination they do a lot of work to good purpose. The two Lothians, with 800 acres each and plenty of stock and suitable equipments; two Millicens, also well fixed, are all related in one way or other. Andrew Dodds and his family, who came some years later and have had severe discouragements, have now two and a quarter sections, 20 horses, 50 cattle, 20 sheep, etc. They sold \$2,300 worth of wheat, and have now 560 acres ready for the next wheat crop. Had they been Canadians they would have gone out ten years ago to look for better luck. I might go on and name more, but let this suffice as a sample from the Pipestone settlement. Now that there are railroad stations in their midst and the price of a good crop well sold in their pockets, it is very pleasant to see their comfortable houses and discuss their improved prospects.

I was asked out to talk in their institute about building, as many of them wish to make extensive improvements along that line next summer. I explained the details and cost of the splendid barns put up by our ambitious friends at Manitou and elsewhere, but the canny Scotch instinct will delay a good while yet the building of \$1,500 barns, though all of them are bent on having a more permanent style of buildings, now that they can

very well afford them. New beginners in search of pointers on cheap and convenient buildings should spend a couple of days on the Pipestone. Scores of hearty and useful horses and cattle can be seen almost anywhere, reared in makeshift erections that have done good service for a dozen years and still serve their purpose in a humble but satisfactory way. I reckon that a bang-up modern barn, properly equipped, costs \$3 a head yearly rent for each animal it holds. About 25 cents a head would cover the debit for beasts sheltered in the old-time housing here. I do not regret that this primitive style of accommodation is going out, but men whose capital is small should keep it in mind and build no more than they can pay for, and at the same time fill profitably what they do build.

The soil of the valley is rich in feeding quality, and stock that are in fair fall condition can, especially in a year like this, be wintered in a very satisfactory way on good straw. The Lothians have each a roomy yard, in which straw cattle can feed outside on very stormy days, surrounded by their pioneer buildings and a 7-foot high boarding of good shiplap that is practically windproof. Water from a pump outside is carried into a trough inside, where stock can drink in comparative comfort. Even the windings of the creek are very useful in providing shelter as well as water for stock fed at straw stacks near it. There is scarcely a tree in the arable district, even on the creek, but it is low down and gives a lot of useful shelter.

What nature has not provided in the way of shelter a good many are working steadily to provide for themselves. One of the best examples is furnished by Mr. McGregor, near Reston. His tastes run in the direction of gardening and house ornament, and I cannot too much approve his methods. His plan is to enclose a good area with a shelter belt of maples, inside of which in a very few years his whole buildings and garden will be enclosed and very effectually sheltered. Let me outline the way in which he has worked out his plan of sheltering 8 or 10 acres with only a part east and south open. Plowed fireguard, sowing grain; then corn, a good shelter in itself; then manure and deep plowing, then potatoes, then

plow, harrow and plant trees, which are now, after three years growth, many of them 10 feet high. The belt is pretty wide and the outside rows very close each way. His most profitable small fruit is currants, in long rows, 200 red, 150 white, 50 black. He mulches to ensure steady progress in a dry year, and has had great success with Victoria rhubarb. He says year old seedlings are the best maples to plant, as they give much less work in planting and hardly a plant ever fails. It is needless to take up space enumerating others who are working along the same lines, and I think very wisely. An old stable may be useful for a year or two longer, but trees take time and cannot be too soon attended to.

The institutes here are models of lively interest and free discussion. At Pipestone I set forth my own ideas of summer fallowing and weed-killing, which I found very much in accord with their own best practice. The one-eyed way of looking at things is often a source of confusion in dealing with this kind of work. Summer fallowing is meantime a perfectly proper way to kill annual weeds and produce good crops, but some most miserable work is done, fore-doomed, of course, to failure, and the men who do it never dream that their own want of judgment is to blame. Be sure you are working the right way, and then go ahead till the introduction of rotation crops enables you in a great measure to dispense with summer fallowing. Then we find that the plan most effective in killing annual weeds is the surest way to spread couch grass. I have more fear of annuals, even comparatively harmless sorts, such as pig weed, than of couch grass. There are special ways of dealing with couch grass, but even if I had a field ready for wheat and bad with grass at the same time, I would go on with the wheat and depend on late plowing the next spring to be sown in two-rowed barley, as an effectual cure for couch grass. To try and collect and burn it is sheer waste of time.

I know of nothing that so effectually brushes the cobwebs out of the brain as a free discussion at a live farmers' institute such as this at Pipestone is, and will, I am sure, continue to be. Let me give an example of how this free discussion works. I stated my decided conviction

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that foul seeds in an ordinary dung pile will be very little injured by heating, and will retain their vitality for many years. One man said his experience was not that way. He had manured a distinctly marked piece of a field and found an apparent extra yield of five bushels an acre, with no more weeds there than anywhere else. I said that was the first case of the kind I had ever heard of, for foul seeds in feed or bedding are not destroyed in the dung pile. I could make nothing of it till one man pointed out that there could be next to no seeds in the pile as the land itself was new and clean. The objection therefore gave added emphasis to my contention.

Many of my friends out there are ardent prohibitionists, and, to be quite consistent, are giving up tobacco, too. Though The Nor'-West Farmer wisely refrains from party politics, I think every farmer should in these long winter days study the laws of health, as well as the principles on which his country is governed, that he may be able to do his duty intelligently in selecting the men who are to govern us, and discover the mutual relations of governors and governed. Education is not half-finished when we leave school; it ought to go on all our lives, and I am sure the capital meeting of good farmers I had the pleasure of meeting at the two Pipestone towns, is as wholesome a school for practical farmers as can be found anywhere. In farming, in politics, and religion it is the man who takes most pains to know accurately who is best as an example and guide.

R. W. M.

Montgomery, Assa.

Among the many improvements in this district during 1897 is the fine new barn built on the farm of A. B. Potter. This building is 32x74 feet, with 8-foot stone walls, 5 feet into an embankment on three sides, with a root house extending into the bank on the south side, holding 500 bushels. Two rows of stock face the walls, with a 3-foot feed passage in front of them. The stable is floored with stone, and has tie stalls for seven horses, 30 head of cattle, a box stall 8x16 for calves, 8x12 for hens, and a harness room, and is well lighted with eight windows, and has a large shaft for ventilation through the roof. The top story being 9 ft. posts and peaked roof, the sides being covered with siding, and the roof the best of B. C. shingles; 32 feet of east end for hay, which is put in from wagon with hayfork; car and track, holding 25 loads. A peaked gable in the roof allows for a door in over the plate, the balance of the barn being filled with oat straw at the time of threshing. The cost was about \$1,000.

Oak Lake.

The Lansdowne Farmers' Institute met in Cameron's hall on Jan. 29th, President J. J. Arsenault in the chair. A good lively meeting, with attendance of about 40. Committee appointed by the Agricultural Society and Institute, re plowing match, reported that they had decided to hold a plowing match next June or July, and had started a subscription list to obtain funds for prizes. This list was considerably augmented before the meeting was over. Originally it was intended to hold the match within two miles of Oak Lake, but a motion was passed allowing the committee a free hand in the matter, so they could go farther out should they deem it wise to do so. A discussion on the effort that is being made by manufacturers to get the duty retained on binder twine, re-

sulted in the following resolution being carried unanimously: "That the Lansdowne Institute, being composed of a large percentage of the farmers in this district, do hereby instruct the secretary to write our M. P., Hon. C. Sifton, to the effect that this Institute, and the farmers generally in this district, are strongly opposed to retaining any duty on binder twine, and trust that the promise made, that twine and the material for its manufacture would be on the free list after July 1st, 1898, be fulfilled."

It was agreed to endorse the resolution of the Brandon Institute re elevator monopoly. A paper on "The Winter Care and Feeding of Stock" was read and discussed. Next monthly meeting will be held on Saturday, Feb. 26th, at 2 p. m., when the subject of "The Best Methods of Seeding," and other business, will be taken up. All interested are invited to attend.—Com.

Notes by the Way.

Many farmers throughout Southern Manitoba have been dehorning their herds. In most cases the owners are quite pleased with the results, although one or two fatalities have come under my notice. A Pilot Mound farmer lost a fine bull through bleeding from the operation. Wherever the amputation has been properly performed there seems to be little trouble, and dehorning appears to be steadily growing in favor among the farmers.

A visit to the stables of Hon. Thomas Greenway, Crystal City, was among the recent pleasures of the writer. In making his recent Ontario purchases, Mr. Yule seems to have been satisfied with nothing but the very choicest stock. The animals are every one beauties, selected from the best herds to be found in the east.

James Ritchie, of Lariviere, has erected a new building for his stock the past year. Not having had time to fit up the cow stables, he has had all his cattle dehorned and is letting them run loose—in this large pen, as it were. He finds them so quiet that he allows his large bull to run loose with the rest. His cattle are all in excellent condition, and Mr. Ritchie is beginning to think that the cattle do better than when stabled. It certainly requires less work to care for and feed them, and I think it probable that the manure treated in this way is of greater value than that obtained from tie-up cattle. It may also be of interest to notice that Mr. Ritchie has a cow affected with lumpy jaw, which he is treating to good effect with Fleming's cure. The cow had been attacked with the trouble last spring.

I once visited a farm in Ontario, where a not very large outlay of cash and the exercise of a little ingenuity had furnished one of the handiest weighing appliances a farmer could desire. A set of ordinary platform scales of about 2,000 lbs. capacity was placed in the barn in a location easily accessible for the weighing of grain, chop, etc. This was very handy, but the owner made a much better use of them. The scales were so placed in the barn above as to be directly over a passage at the end of a row of stalls in the stable. A section of the floor about six or seven feet in length was replaced by a hanging platform of the same size. This was suspended by four iron rods from the platform of the scales above. The additional weight was kept balanced by one or two small weights which were attached to the beam of the scales. The attachment was used for weighing stock, and was found

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to be a great convenience. Situated as it was, it was entirely out of the way, it never clogged with frost or snow; there was no difficulty in getting stock to it, and it was found to be fairly accurate. Being so handy, it was often used. When the owner had a lot of steers or a batch of pigs feeding for the market, he put them on every few days, and by weighing the grain fed and the beef or pork produced, he could always tell how much per pound his animals were costing him. He wasn't a particularly large farmer, but he claimed that the apparatus easily paid for itself. Perhaps some of the larger stock feeders of our province might find a similar arrangement equally profitable. There is nothing like knowing exactly where we are at, and what success is attending our work. The scales are indispensable to the striking of a fair trial balance. Very interesting revelations are occasionally made in this way.

An intelligent Manitou farmer, in a recent conversation, said that he thought that agricultural writers could not have too strongly impressed upon them the importance of giving an account of the nature and preparation of the soil and the attendant circumstances when giving the results of any experiments. To show something of the differences which may exist even in the same district, he stated that the land in a certain farm near Manitou was so heavy that the owner, who began by deep plowing, lost seven crops out of nine from frost, and not until he took to burning the stubble and plowing once every three or four years did he have success in wheat growing. At the same time the land of some of his neighbors was quite light. He also suggested that those in charge of experimental stations would add much to the value of their reports by appending to their bulletins of returns an account of some of the attendant circumstances. The suggestion, though perhaps threadbare, is still good.

The business men of Manitou and L'Arrière complain that the new town of Hanna, just across the boundary line, is attracting a considerable quantity of the trade which formerly came from the south. A number of farmers living in the district lying between these places have informed me that a year ago a great deal of wheat was brought by American farmers across the line and sold at Manitou and adjacent towns, while the past season not only was all this trade lost, but many thousands of bushels were sold by Canadian growers at the new Dakota town, in some cases as high as 25 cents more being given for wheat than could be realized for the same article on this side the line. Of course, a great deal of trade in other lines is also lost to the Canadian towns.

Speaking to R. N. Baldwin, of Manitou, on the matter of summer fallowing, he gave it as his opinion that for the eradication of twitch grass fallowing was even worse than a failure. He said the best results he had ever seen were obtained by growing barley. He cited a case where he had sowed barley on a piece of land so badly over-run by the grass that it seemed almost like throwing away the seed. For a few weeks the grain could not be seen, but before long it got so far ahead of the grass and choked it out so completely that it had never appeared to any extent since.

In some rural districts a great many farmers, when going to town, bring home mail and other parcels for their neighbors. A Thornhill man has a covered box attached to a fence-post in front of his house, so situated as to be easily reached from a rig, and which is used as a recep-

tacle for anything of this sort. It is a very simple contrivance, but is considered quite a convenience.

The matter of windbreaks and shade trees is a rather important one, which comparatively few Manitoba farmers are taking any action upon. H. Boyle, of Thornhill, is undertaking something practical in this line which he hopes will prove a success. Last spring he prepared and fenced a piece of ground about fifty feet square. In this he set out in drills about eighteen inches apart, a quantity of maple seed which he had gathered. He has now perhaps from one to two thousand young trees about six inches high. He expects that by using some manure and a little work he will soon have the material for a good maple windbreak. The undertaking is neither new, large nor expensive, but many good things have small beginnings. It may prove to be more than worth a trial.

Mr. A. Jackson, of Thornhill, on Jan. 25th, told the writer that he had a Durham grade cow which is giving twenty-eight quarts of milk per day and making from 10 to 12 lbs. of butter per week. She is being fed on hay and barley and oat chop. He wonders how many cows there are in Manitoba which are beating this record.

Considerable has been said in *The Farmer* of late regarding barn building. As few farmers expect to build a new barn every year or two, it is very important that a man look well before he leaps. I have gone through a good many barns, and have seen some very fine new ones which have been built with lots of barn space upstairs, but with no drive or outside entrance. George Perfect, within a mile of Pilot Mound, has a very fine building, 80x42 feet, but built after this new-fangled plan. Everything in the way of feed has to be taken in by slings or hay-fork at the ends of the building. I think it must be obvious to everyone that a man with such an arrangement must miss a great many conveniences. Sometimes short, chaffy feed has to be taken in, which cannot be handled to any satisfaction in this manner. Oftentimes it is a convenience to be able to run a load inside which one does not care to unload at once. Then, again—and this is by no means a small consideration—there are many thousands of dollars worth of implements in Manitoba dying an unnatural death from exposure, which might easily be stowed away in some convenient corner of a mow or barn floor, but which find an annual resting place among the snowdrifts.

G. B.

Ed. Note.—There is another side of this matter that does not strike wandering critics. If the \$1,500 barn has \$3,000 worth of grain, stock and equipment stowed away in it, a match carelessly thrown down the whole pile will make a splendid bonfire. A machine set in the shady side of a poplar bluff has a fair chance of living as long as if housed subject to such risks. Has this correspondent not seen such places as that of Alfred Bedford, at Calf Mountain, where only grain and implements are stored, remote from fire risks?

While boring for water in Rosebank, a seam of coal over two inches thick was discovered. It burned readily when put in the fire and seemed to be of superior quality.

Land is rising very rapidly in value in the vicinity of Rosebank and Roland. Wm. Weir bought a quarter section farm in April last for \$2,000. He did some small improvements on it and six months

later was offered \$3,000 for it. All the vacant lands are being rapidly taken up, and the old settlers are confident that, as the merits of this district become better known, the value of the land will still continue to increase.

If we can judge accurately by the number of fruit tree orders given by the farmers this winter, they have not yet by any means given up hopes of Manitoba as a fruit growing country. One company stipulates that the trees must be planted according to the directions given, or not at all. The main feature in these directions is that the trees are to be planted in clumps or clusters, thus resembling nature's mode of growing trees on the open prairie. If it leads farmers to grow more and better windbreaks around their orchards, it will be a decided advantage. The clustering of the fruit trees should be an advantage while growing. When they reach a bearing age, however, trees require a certain air space, whether planted in exact rows or promiscuously, and the advantage of this style of planting is not then so apparent; indeed, it is doubtful if there is any.

The Klondike fever has smitten even the farming community. Here and there throughout the west we meet with eager young men who have sold their farms in order to raise the funds required to take them there. The idea of making a fortune in a few months, and then returning to enjoy it for the rest of life, has a fascination for us all. While the old proverb, "Never venture, never win," may be true, yet in how many cases will the gold mine be greater at the commencement than at the end of the journey.

The other day I met an enterprising farmer, who had saved the screenings (chiefly weed seeds) of an 80-acre field of wheat and got them crushed. For the past three months he had fed six hogs on these screenings. They were fattening rapidly on it, and would then weigh about 170 lbs. They were as thrifty looking as if fed on the best of wheat. The fewer weed seeds we have the better for us, but when they do grow in spite of our efforts, as they did this year, this should be a more profitable way of getting rid of them than by burning them.

Many farmers have to buy grain for their stock this year, and the high price of oats makes it very desirable that some other kind of grain be substituted for them. In some localities oats or corn can be bought for about 40c. a bushel. Many farmers buy the oats in preference to the corn, although for ordinary purposes corn is decidedly the cheaper food. We can get a very clear idea of the relative value of each kind of grain by comparing the digestible constituents in a certain quantity of each. For convenience, we will work on a ton basis, taking first the albuminoids, the most costly constituent in ordinary fodders. We find that in a ton of corn there is 168 lbs., in oats 180 lbs. In albuminoids then oats have quite an advantage. Of carbohydrates and crude fibre there are 1212 lbs. in a ton of corn; in oats 860 lbs. In these less valuable constituents corn, on the other hand, is much richer. The percentage of fat in each grain is almost identically the same. If there was the same number of pounds in a bushel of oats as of corn there would not be much difference in their values, but while 36 bushels practically makes a ton of corn it takes 59 bushels to make a ton of oats. Supposing, then, that oats or corn can be bought at 40c. a bush, there would be left in favor of a ton of corn a cash balance of \$5.20. As a grain for horses, centuries of hard experience has proven that oats are a more valuable food

than their composition indicates. For other kinds of stock, and even for horses when crushed and mixed with oats, corn is decidedly the cheapest food.

At present when a new bridge has to be built over our large rivers, such as the Assiniboine or Pembina, the government defrays one-half of the expense of building and the municipality in which the bridge is situated the other half. If only residents of this municipality were benefited by this bridge it would only be just that they bear at least one-half of the expense. In many cases, however, the residents of adjoining municipalities use the bridge more than the municipality taxed. In the vicinity of La Riviere a bridge over the Pembina will have to be built at a cost of \$3,000. In this case the bridge is used principally by residents outside of the municipality. Would it not be more just to have such bridges, which benefit a large portion of the province, built entirely at the expense of the provincial government?

This winter has been particularly favorable for the catching of fish in the small lakes and rivers, and they are being caught in such a wholesale manner that our local fisheries are in danger of being rapidly exhausted. In the vicinity of Swan Lake they were brought in by the Indians by jumper loads and sold for a mere trifle. The farmers in the vicinity derive much pleasure and fair profit by fishing at intervals during the summer and winter. A few more winters like this, however, and there will be no more fish to catch.

Mr. Sutton, of Roland, is an enthusiast on the subject of dehorning. Last April he dehorned his entire herd, and is more than pleased with the result. The operation is undoubtedly very painful for the moment, but it did not affect the appetite or general health of any of the animals in the least. He allows his cattle to run loose in the stable, and says that he would sooner look after 50 head of cattle dehorned than 25 left in their natural state.

Andrew Graham, of Pomeroy, is in Ontario buying up some more Shorthorn cattle. His stock at the Forest Farm is coming through the winter in fine condition. He evidently is determined to have a Shorthorn herd second to none.

Engineers are at present engaged in taking the levels and other necessary work preparatory to draining the Boyne marsh, which extends for miles north and east of Myrtle. Something in this direction was done some years ago, but the drains then constructed were not deep enough. It is estimated that a large tract of country will be benefited by this drain. Around Lowe Farm alone, 16 farms have been sold to individual settlers, who intend to move on the land in the spring. It is generally thought that the drain will empty into the Morris river.

While talking with an elderly lady the other day, the subject of exterminating lice on cattle was touched upon. The lady said she never had much trouble in that line, for she had learned a simple remedy in her young days which had never failed. "You see," she said, "the lice have to come to the eyes of the cattle every day for a drink. If you can keep them away from the eyes they will die of thirst. Then, all you have to do is to tie a piece of yarn, soaked in blue ointment, around the neck of the cow, and the lice, being unable to pass this string, die of thirst."

The country around Swan Lake is not specially adapted to wheat growing. This is partially due to the very rich character

of the soil, which induces rank growth and a long ripening period, so that harvesting here is generally two weeks later than it is around Holland, where the soil is light. The farmers here were too energetic to give up because wheat raising was not very profitable; the majority of them went in for mixed farming, keeping as much stock as possible and sowing wheat only on the higher land. Nearly all the farmers who have done this are to-day in comfortable circumstances. Everything favors the successful raising of live stock; there is an abundance of good water and pasture, and a great deal of scrub and bush land, where the stock like to shelter. Of late years several of the farmers have gone in for pure bred stock. In our January issue we gave a cut of some of Mr. Peters' Shropshire sheep. Mr. Peters has secured some of the best possible foundation stock, and is determined to have a flock second to none in Manitoba. Last summer he bought sheep from four of Ontario's most noted breeders—S. H. Hanmer & Son, Mount Vernon; John Campbell and H. McKay, of Woodville, and Millar & Sons, of Claremont. He brought his sheep west in time to show at the Winnipeg Industrial, and made an excellent display. His farm is very pleasantly situated, 4½ miles northeast of Swan Lake. A little east of Mr. Peters is the barn of A. J. Moore, breeder of Hackneys and Clydesdale horses and Shorthorn cattle. Mr. Moore's stock is already favorably known throughout the province. A mile north of this Mr. Corbett's stock farm is situated. He has some excellent Shorthorn cattle and Shropshire sheep, besides a large number of grade cattle. He had a splendid season, selling all his spare stock without any difficulty.

J. R. O.

Ed. Note.—The "wrinkle" about feeding hogs on crushed screenings, principally made up of weed seeds, is only in its first stage yet. There is not any crushing machine in use that will crush such small seeds. Some of them scarcely half crush the wheat itself. Of the other seeds, the greater part go through the pigs undigested and their manure wherever spread will produce a forest of weeds. The only way in which pig weed, a capital stock feed, and others of more doubtful value, can be used with safety as stock feed is to soak the ground crop in hot water long enough to make sure that every one of the seeds in the mess is bursted.

A careful observer of poultry needs no better sign of its condition than to watch the comb. A bright red comb shows that the hen or male is healthy and vigorous, and if a hen, she will probably be a good layer. After the egg supply has failed the comb will generally lose its color. In cold weather fowls with large combs must have extra warm quarters, as these are very easily frozen. It is frozen combs more often than anything else that makes Leghorns and Minorcas poor winter layers. As their name implies, they are natives of warm climates, as, indeed, most fowls are. They very rarely get into as warm quarters as they could find

Some readers may be disposed to think that too much fuss is made by some people about the risks following the use of impure water. So till quite lately thought the authorities of the town of Maidstone, in the south of England. At one time they employed a man to look after the quality of their water supply. It cost them £40 a year for a fortnightly analysis of the town's water. This they dropped to save expenses. They have had over 1,500 cases of typhoid fever and 100 deaths. The visitation costs them £1,500 a week, and no one knows when the trouble will end.

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MAIN LINE.

Arr.	Arr.		Lv.	Lv.
11 00a	1 30p	Winnipeg	1 05p	9 30p
7 55	12 01a	Morris	2 32	12 01
5 15	11 09	Emerson	3 22	2 45
4 15	10 55	Pembina	3 37	4 15
10 20p	7 30	Grand Forks	7 05	7 05a
1 15	4 05	Winnipeg Junc	10 45	10 30p
	7 30	Duluth	8 00a	
	8 30	Minneapolis	6 40	
	8 00	St. Paul	7 15	
	10 30	Chicago	9 35	

MORRIS-BRANDON BRANCH.

Mon., Wed., Fri. Tues. Thurs. Sat.

10 30 am	D . . .	Winnipeg	A 4 00 pm
12 15 pm	D . . .	Morris	A 2 20
1 18	. . . . .	Roland	1 23
1 36	. . . . .	Rosebank	1 07
1 50	. . . . .	Miami	12 53
2 25	. . . . .	Altamont	12 21
2 43	. . . . .	Somerset	12 03
3 40	. . . . .	Greenway	11 10 am
3 55	. . . . .	Baldur	10 56
4 19	. . . . .	Belmont	10 35
4 37	. . . . .	Hilton	10 17
5 00	. . . . .	Wawanesa	9 55
5 23	. . . . .	Rounthwaite	9 34
6 00 pm	A	Brandon	D 9 00 am

Taking effect Tuesday, Dec. 7th. Direct connection at Morris with train No. 103, westbound, and train No. 104 eastbound.

PORTAGE LA PRAIRIE BRANCH.

Lv.		Arr.
4.45 p.m.	Winnipeg	12.35 p.m.
7.30 p.m.	Portage la Prairie	9.30 a.m.

C. S. FEE, Gen. Pass. Agt., St. Paul. H. SWINFORD, Gen. Agt., Winnipeg.

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Under authority of sections 39, 40 and 41, Cap. 121, R.S.M., the following only are entitled to practice as Provincial Land Surveyors in Manitoba:

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Bayne, G. A.,	"	Simpson, G. A.,	"
Bourne, Robt.,	"	Young, R. E.,	"
Chataway, C. C.,	"	Francis, J.,	Poplar Point.
Doupe, Joseph,	"	McFadden, M.,	Neepawa.
Doupe, J. L.,	"	Rombough, M. B.,	Morden.
Ducker, W. A.,	"	Vaughan, L. S.,	Selkirk, W.
Harris, J. W.,	"		
Lawe, Henry,	"		

By order,

J. W. HARRIS, Secretary, P. L. S. Association.

N.B.—The practice of surveying in Manitoba by any other persons is illegal, and renders them liable to prosecution. 1445F

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While our columns are always open for the discussion of any relevant subject, we do not necessarily endorse the opinions of all contributors. Correspondents will kindly write on one side of the sheet only and in every case give the name—not necessarily for publication, but as a guarantee of good faith. All correspondence will be subject to revision.

To Correspondents.

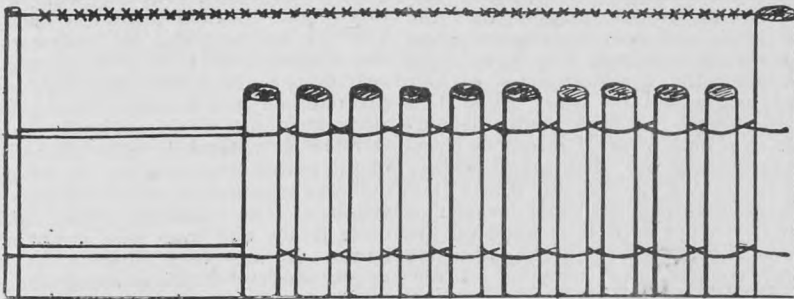
Will those who write us in this department try to condense into the smallest possible space what they have to say. Long-windedness and verbiage are the besetting sins of most writers, and we reluctantly throw in the waste basket letters that, if more carefully composed, we should be glad to print.

Picket Fence for Swine.

J. G. Kavanagh, Deloraine, writes as follows: "I noticed in *The Farmer* some time ago a correspondent asking for information on building a cheap hog pasture fence. I intended to reply at the time, but neglected it. Put down posts a rod apart, use plain single wire and fasten two wires to the corner post 6 or 8 inches from the ground; fasten two more 2½ feet from

not available, I may inform your correspondent of the plan that is much used in Southern Manitoba and is a complete success after many years of experience. 1st. Dig an ordinary well 10 ft. deep and 4 or 6 ft. square; plank this up to the top and put on a close-fitting top, or, better still, put this in the centre of your milk house, same as my own; then cut your ice in dry, cold weather, and pack as full as you wish. It don't need sawdust nor any packing at all. Don't fill in any water as we used once to do, for before the water can freeze it gets a bad taste, and is never any good again. I have kept fresh-killed meat in the heat of summer which was good at the end of three weeks, and I have seen the lid of the butter dish frozen together so that it could be carried into the house by the lid in the hottest days in July. Again, what is so nice as clean, fresh ice water to drink in the heat of summer? God's blessing given to us in pure crystal form, which beats all other forms of drink for farmers. This size of well should be more than most farmers could use, but if larger ones were built, so much the better, as it is nice to take a jar of butter to your grocer in a frozen condition in July. 2. Don't know of anything that could make the farmer's wife smile like one of those wells.

John Kelly also writes to the same effect. He says: Cut ice in blocks and pack, filling crevices with cut ice. Some pour water and freeze solid, but we prefer not, as the ice is easier got out in loose blocks. We cover with a platform and a



the ground; fasten the other end of the wires to a handspike in the same way and set it down 15 or 20 rods along the fence and tie the handspike to a post to keep the wires taut. Now take common pickets 1x4 and 2½ or 3 feet long; shove them in between the two top wires and the two bottom wires; reverse or cross the wires between the pickets, and shove them up to three or four inches apart. If pigs get a notion of shoving the pickets apart with their nose, which they may if the wire is allowed to get slack, run a narrow strip of board or pole along close to the ground and nail each picket to it. When putting in the pickets it will be necessary to give a little slack occasionally from the handspike end of the fence, but be sure to draw up tight as possible before stapling to the posts. For this country I would use short pickets, say 2½ feet, and a barb wire on top. Poplar or any kind of cheap, sound lumber, will answer. Small, straight poles sawed up the proper length and split in halves, like long stove wood, but made flat, will answer the purpose. If you want a cheap fence around the house or to protect the garden from fowl, you can use common lath and lighter wire, but in all cases I would like a barb wire on top. This fence, when made with common 4-inch pickets, is cheap, neat, strong and durable, and I hope every reader of *The Farmer* will try a piece of it."

Successful Ice Storage.

D. G. Lowe, Union Point, writes: "In answer to J. B. D., of Didsbury, Assa., as to how to store ice where sawdust is

not available, I may inform your correspondent of the plan that is much used in Southern Manitoba and is a complete success after many years of experience. 1st. Dig an ordinary well 10 ft. deep and 4 or 6 ft. square; plank this up to the top and put on a close-fitting top, or, better still, put this in the centre of your milk house, same as my own; then cut your ice in dry, cold weather, and pack as full as you wish. It don't need sawdust nor any packing at all. Don't fill in any water as we used once to do, for before the water can freeze it gets a bad taste, and is never any good again. I have kept fresh-killed meat in the heat of summer which was good at the end of three weeks, and I have seen the lid of the butter dish frozen together so that it could be carried into the house by the lid in the hottest days in July. Again, what is so nice as clean, fresh ice water to drink in the heat of summer? God's blessing given to us in pure crystal form, which beats all other forms of drink for farmers. This size of well should be more than most farmers could use, but if larger ones were built, so much the better, as it is nice to take a jar of butter to your grocer in a frozen condition in July. 2. Don't know of anything that could make the farmer's wife smile like one of those wells.

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trap door. If water comes on the ice, we dip off for cans. Some have a milk house over well.

Seeding Questions.

Subscriber, Holmfild, writes: "I wish you would give in your paper the best preventive against smut in wheat. Also, is bluestoning injurious to the strength of the plant? Also, is it a good plan to sow oats on summer fallow?"

Answer.—There is hardly any farmer who questions the value of bluestone as at once the best and cheapest and simplest preventive of wheat smut. There are two ways of applying bluestone to wheat.—First clean the wheat itself in a fanning mill all you can. Then dissolve bluestone in a wooden pail with hot water. Never use metal for such work. When all dissolved, add enough cold water to make, say 3 gallons in all of liquid to a pound of bluestone. Some sprinkle and turn. We say use a big tub. Dissolve say 5 lbs. at once and add the proper proportion of cold water. Then fill a cheap, coarse bag with the seed, souce in in the water and set up a few minutes on a board to drip, so as to let all the surplus water run back into the tub. In this way with 5 lbs. of good blue stone, 40 to 45 bushels of seed can be soaked in a short time, using one bag to dip while the other is dripping. All wheat should be thus blued; it costs so little and means so much to the next crop, for prevention is the easiest cure. It may be stronger or weaker to your own judgment. Read Mackay and Bedford's reports along with this. To

cure oat smut, use the same strength of liquid, but steep 15 minutes for a sure job.

Bluestone is not injurious if handled with ordinary common sense. Bluestoned seed has been kept a twelve-month and lost none of its vitality. Oats will grow on fallow as well as anywhere else, but for ordinary practice, spring plowing is preferable.

Rose Comb White Leghorns.

Subscriber, Seven Persons, Assa., writes:—"Please let me know through your columns the address of any poultry breeder having Rose Comb White Leghorns for sale."

Answer—Geo. Wood, Louise Bridge P. O., Winnipeg, Man., and Hunter Smith, Box 274, Brandon, Man., handle this breed of fowl.

A Fox Terrier.

Raymond Dale, Box 425, Qu'Appelle Station, Assa., writes: "In your January issue John Shilson, Snowflake, is inquiring for a pure bred fox terrier. I have a very handsome pure bred bitch; she is 6 years old, marked black and tan on both ears and cheeks, but has no other markings; her parents were both imported dogs (from England. I am open for an offer."

Here is another all the way from Georgia, U. S. A.:

"Noticing in your last issue that some one wants a pure bred fox terrier, we would like to state that we can furnish one through a party in Virginia. Respectfully, The So. Fancier, Atlanta, Ga.

Brome Grass Seed.

Fred. Smith, Brandon, writes: "In answer to J. P. Irwin, Morden, re Brome grass seed, W. R. Glugas, Hofflund P.O., Williams county, North Dakota, has it advertised in Campbell's "Soil Culture," December, '97, issue. I very much appreciate your paper."

Wild Fruits under Cultivation.

Wm. Bertram, Rounthwaite, sends us the following valuable notes of his experience: "In your December and January numbers there are reports of success and failure in growing wild black currants. You ask that others tell of their experiences with wild fruit. Here is mine. After seeding in 1882, one soaking wet day I dug up about fifteen black currant bushes and conveyed them a mile and a half to my own farm, and planted them at once in a plot that had been broken up the year before and dug over with a spade late in the fall. The sod was well-rotted and a good mould spade deep, being decidedly gritty, was quite loose. I tramped the soil well around each bush. The blossom was on the bushes when I dug them up, and still they bore a heavy crop that same summer, and from then until now they have never failed to yield abundantly. In the dry seasons of 1886, 1889 and 1892 they were affected by the prolonged drouth, but last season they yielded as well as ever they did, and show no signs of disease of any kind. Twice a little manure has been dug in around them, and they have been kept fairly clear of weeds. They have got no scientific pruning whatever. They have been thinned out a little to let the air in, and the ends of the branches cut off, sometimes by pressing the branch to the ground with the foot and cutting the ends off with the spade. You will see that under rather trying circumstances they have not only existed, but flourished and bore fruit. Pailful upon pailful is taken from them each year of berries that will bear comparison for size and quality with any cultivated variety I have seen in Manitoba. Wild red and

white currants have not been a success as yielders. They seem to be unable to stand the removal from the very moist, well-shaded and sheltered spots where they are found. Wild gooseberries treated similarly to the black currants yield an abundance of small berries which will drop off, if left to ripen. The berries have increased in size very much since they were first transplanted into cultivated soil."

Note.—Would it not be a wise thing to mulch rather than dig in manure. Cow manure may be most suitable for such soil. Try a few our way.

Gang Breaking Plow.

W. J. Publow, Pilot Mound, writes:—"Please inform us in your next issue the best way in which six horses can be hitched on to a gang breaking plow, taking two 14-inch furrows."

Answer.—The likeliest way to do it is by hitching them up three abreast. To drive them tandem, two and two, means a considerable waste of draught power, and perhaps also greater difficulty in turning.

Prices for Cement.

W. D. Cole, Napinka, writes:—"Should like very much if you would inform me in next issue of The Farmer where I can get Portland cement in Winnipeg, also water lime, and at what price."

Answer.—The present quotations for Portland cement are about \$4 a barrel, for hydraulic cement about 40c. a bushel. Let us know how much you want, and when.

Building Plans.

John Zinkham, Regina, writes:—"I intend building a bank stable this season and putting a granary on top. Would you, through your paper, inform me about what would be the most convenient size for a farm of about 80 or 100 acres in crop. My best crop of oats last season was on land sown broadcast and plowed in shallow."

Answer.—Study plans in present issue, and tell us how many head of stock you want to provide for. Will reply next month.

Grass Seed.

Subscriber, Springfield, writes:—"What kind of grass seed is best for calf pasture? What quantity would you sow to the acre?"

Answer.—It is hard to beat Brome grass (*bromus inermis*) for your district. It is more relished by all kinds of stock than any other grass yet grown here, and will produce as much to the acre as other sorts. The stock of seed in the country is very limited, but the Winnipeg seedsmen can import it. One or two acres will start you. Sow on good land in middle of May, 12 pounds to the acre. Cultivate on surface beforehand to germinate the annual weeds before sowing. There will still be weeds come in the crop, but if the land is rolled after seeding, you can let the calves on it for a few days, then mow the weeds as low as possible. Do this once, or twice if necessary, but don't let it be eaten too low in the fall, that is if you can keep the calves off it after they have once tasted it. Mulch in November with a little half-rotted manure.

Non Residents and Noxious Weeds.

John Wenman, Souris, writes:—"The average Manitoban has already become familiar with the noxious weed fiend through the medium of farmers' and other papers; has perused, with perhaps indifferent interest, many a spirited warning against the evil of allowing pests to encroach upon our virgin soil, with many wholesome measures advanced towards

combating the same, and obviously he is beginning to realize that these dire forebodings are no longer to be dubbed the children of a dyspeptic or pessimistic mind, and is even now awakening to the fact that the ordinary "non-resident" and "noxious weeds" are very closely related; that, in fact, the one is too often the foster-parent of the other, and further, if residents' lands are not to be given up to the aggressive usurper, the propagating tendencies of the former must be checked. It may not be possible to prevent landowners living, say in the Sandwich Islands, and renting their property on the pernicious short lease system, but as residents we are more than culpable in allowing such lands to exist as mischievous breeding grounds for weed pests. It is just possible that here and there through the country may be found non-resident lands other than pestilential in their nature, but observation tends to the conviction that the few brilliant exceptions will only go to prove the rule. Let me quote as an illustration of this dangerous system, a farm unfortunately not one hundred miles from my own, which, since it blossomed from the bud of its virginity into a farm, some sixteen years ago, has seen nearly as many tenants, whose devoted efforts have, of course, in turn been applied to the improvement of such property for their immediate successors, the major portion of them being equally innocent of the charge of having accomplished nothing. Footprints they have left behind, indeed! Legacies, for which an afflicted community is strangely ungrateful! One would imagine that the line of profit and loss consequent upon such high class tillage has been long passed, that the productiveness of our vaunted virgin soil on other lines than the staple cereal has been amply demonstrated. Yet this form of intensive farming goes merrily on. The premises may indeed be vacant during the winter, but the advent of spring, the great revealer of all that is corrupt as well as good on the earth's surface, shows us the itinerant producer equipped for carrying on one form of "mixed farming." Ye sceptics, belittle not his successes! His transient nature is not guilty of superfluous sentiment, nor disposed to be unduly solicitous of other people's property. Indeed, it would be remarkable were it otherwise. And now let us frankly admit that, as residents, we are very much to blame in that our stand has been but an apathetic one. Measures, we are aware, for combating weed pests are sometimes resorted to through the season, measures that most of us feel at the time are criminally inadequate. An occasional blackening of the surface of the ground may be effected under pressure of the weed inspector, perhaps after many of the seeds have well ripened, two-thirds being religiously stored away out of sight for future use, the remainder left above ground to do duty the following season. Now it may be that were the inefficiency to stop here (with the foul seeds) contiguous lands might be but little affected, but as is too often the case on these well regulated nurseries, the straw piles, and the iniquity they surely represent, are allowed to remain as decoys for the cattle and pigs (of shiftless farmers), which are the effective agents of dissemination and the limit of production is quickly and thoroughly extended. It is far from being the object of this criticism to reflect in any way upon the efficiency of any official whose hands may be in a measure tied, but rather to provoke an earnest crusade against an offensive and far-reaching evil; nay, to demand from those who are empowered to act more rigorous and timely action, withal, a stand more in keeping with the urgency of the situation, so shall we the more surely foster our own best interests, and prove true to the trust im-

posed upon us by our young country.

Ed. Note.—Everybody admits the urgent necessity for grappling with these noxious weeds, but too many of them are like Job's comforters, they "abundantly declare the thing as it is" without suggesting any feasible remedy. One case let us mention here. Allan Young, at Griswold, was employed by the local council or its inspector to plow under the weeds on just such a farm. He secured a lease for one year of the land he had to treat, with the option of purchase. He then set to work made a good job of it, and sowed enough last year to pay for the farm, the non-resident owner being compelled by the council to pay for the cleaning. To all grumblers against the present defects in action of outside owners and the council whose business it is to look after them, our advice is to go to Griswold, study their procedure and follow in their footsteps.

Mole or Gopher?

W. O. Laing, Clearsprings, writes:—"Shortly after my last letter to you, I trapped one; a very unusual thing so late in the season, as they generally retire to their winter quarters pretty early. Had I known then that you desired to see a specimen, I would have sent that. I examined it minutely and found that in my previous letter I had made a slight mistake. I said the animal had fair-sized eyes. The fact is, it has very small eyes, larger, however, than those of the European mole. This, together with the fact that it gets its food below the surface, is a pretty strong point in confirmation of the opinion that it is a true mole. A year or two ago a little boy of mine trapped one and took it to the school alive, to show it to the teacher, who is much interested in natural history. It was kept in the school house for two or three days, and was a source of much interest to the scholars. The children could stroke it quite freely, and even take it up in their hands. It was very slow in its movements, merely toddling along the floor, and had none of the active movements of the gopher about it. It was also so defective in vision in the daylight that it would run against the desks or anything else in its way. Mr. Brydon called it the pocket gopher, but I think the pocket mole would be a most appropriate name for it. As not one of your correspondents has made any reference to the pockets of the animal, beyond that contained in the name of pocket gopher, and as I am sure some of your readers will be wondering what style of pockets the animal wears, I give from memory a rough description of them. They are situated one on each side of the neck, and the mouth of each extends from the base of the neck to the front of the shoulder. The depth of each is about two inches, and the width about the same. One might pick up the animal and examine it carefully and never observe the pouches, as the mouth of each is closed. The skin of these pockets is very loose and flabby. The question will naturally occur, "Of what use are these pockets to the animal?" I conjecture that their use is to carry earth out of their tunnells. On one occasion I saw it pushing earth out of its burrow, and it was pushing it with its breast, and not with its hind legs, as any other burrowing animal is certain to do. These pockets would make admirable shovels with which to shift the earth out of their tunnells. For its size, it must be very strong, at least in the matter of pushing earth. I have seen where it had pushed as much earth as would half-fill a wheelbarrow, up through a crack between two boards, and up among the potatoes in the cellar, the said crack being only half an inch wide. How

the animal manages it is beyond my comprehension. So seldom is it seen, even by the farmers, that a great many are ignorant of its existence. I have even seen natives of the country fifty years old who knew nothing about it. I will send you a specimen next summer, if I keep my health. I think Mr. Brydon was decidedly in error when he spoke of this animal throwing up mounds, and eating the heads off the sheaves in the stooks. I have never seen one instance where it has done so, but the grey gopher has a habit of doing the eating, while the mole throws up the mound. The mound only comes up to the place where the sheaves meet, but the grain is all above that. Many persons jump to a conclusion too quickly. They see the mound, and also the heads eaten, and most probably the bands cut also, and immediately decide in their minds that the same animal has done the whole. I am absolutely certain that this mole gets all its food below the surface of the ground, even as its European namesake does. In its burrows I never saw one grain of wheat or any other grain, but more than once I have found considerable quantities of roots, particularly those of the wild artichoke. Wherever this plant grows there you will invariably find the mounds very numerous. I said that the animal is very easy of capture, and so they generally are, but if one gets only slightly caught, and succeeds in getting away, you will never catch that mole a second time, no matter how long you try. It will dig past the trap every time and cover it up with earth."

John Hemsworth, Fletwode, says both mole and pocket gopher are to be found in the Northwest. The habits of the two are much alike. The pockets of the gopher have the mouths outside on each side of its head, and in these it carries its food. Both can be trapped in the way already described in The Farmer.

Irish Landlords and Tenants.

A disgusted Irish farmer, now settled at Lacombe, Alta., referring to the statement of an Irish landlord's troubles, on page 306, September issue of The Farmer, thus writes:—"There are two sides to every story. I will give you my experience as an Irish tenant farmer. My grandfather had a farm. Some of his sons came over to America, and sent him money, which he laid out in improving the farm. When it was in a good state of cultivation, the agent and his valuator came along to value the farm, and came to the conclusion it was worth double the rent. Next time the rent fell due he had to pay the double rent or walk out, and leave all his money behind him. And so on things worked till the Land Act. I only quote one solitary case in a thousand. Now with regard to buying property in the sixties. A near friend of mine went to buy a property, and the average price going at that time was fourteen years' purchase on the rental. And the scheme carried out in buying the property was this: The first thing he had to do was to get the books, to see how much every tenant's rent was, and then go and value the land to see how much they could be raised, and now landlords complain because the power of doing that is taken from them. With regard to the tenant getting more purchase money than the landlord, the tenant does all the improvements and the landlord only takes his rent. Who deserves the most purchase money? The unsettled state of matters between the landlord and tenant is keeping the tenants of Ireland from improving their land,

owing to the valuation for rent being raised every 15 years. The only remedy that I can see is to have the tenant purchase his land and do away with landlords. When this is done the average price the commissioners are allowing is seventeen years purchase on the rental. Gold mines do not last always. In my own experience I had seventy acres I could improve, but rather than lose my time and bother with a landlord, I sold it and came to Canada, where I can improve and call it all my own; and, after three years' experience, I would not go back and live under a landlord."

Note.—Every story has two sides, and no doubt much of the unrest and dissatisfaction in Ireland is due to the indifference of the absentee landlords. But there were excuses for absenteeism. When a land owner or his agent ran a chance of being shot at from behind a turf wall, it was very natural they should not care to stay and take such chances. There were faults on both sides, and with the falling values of both land and its products, no permanent valuation can be easily fixed. The Scotch, who always called for long leases, now want something else. Our Irish friend is sound in his opinion that in this free land every man can have the fruits of his industry without fear of outside interference, always provided he is wary on the subject of mortgages.

Excessive rains in the old country have proved very destructive to sheep feeding on turnips. The sheep trample over the half-eaten turnips, covering them with clay and sand, which gets into their stomachs and kills them.

Luther Burbank, a great experimenter, is said to have planted 12,000 seedlings of one sort of tree before he had two that he thought worth propagating. The Wealthy apple, now so valuable in Minnesota, cost thousands of dollars in trials, blunders and failures before it was evolved by John Gideon, of Excelsior.

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The Manitoba Government Dairy School.

(See illustration, page 41, this issue.)

The school opened for the session of 1898 on the 3rd of January. The Farm Dairy course was the first in the session. In this course practical instructions are given to all persons who apply for admission to the school. The machinery that is used in this course is just such as should be used in every farm dairy for the manufactures of butter. This machinery may be enumerated as follows: The hand cream separator, the jacketed cream can, hand dairy churns, hand butter worker, an absolutely correct thermometer, a butter printer (1 lb.), and parchment paper for wrapping up the square prints of butter in. These utensils are used every day during the farm dairy course. There are five different kinds of hand separators, the Alexandra, the Mikado, the American, the De Laval Alpha, and the Melotte. Each student is required to take charge of one of these separators as his or her turn comes during the week; each student also takes charge of the churns, for churning, setting, and ripening the cream, working and packing the butter, every one being responsible for the proper operation of all machinery and the proper manufacture of the butter. In the milk-testing room there are three milk-testing machines—the Babcock and two of the Lister-Gerber testers, and all the necessary appliances for using with these machines. In this room every sample of milk that is received in the school for instruction purposes is tested every day; the sample of skim milk from each separator and the cream and butter-milk from each churn is tested as regularly as the day comes. Every student in the school has a chance to know what is going on every day. The more observant students each keep a record of every proceeding for themselves for future reference. Besides using the separators for taking the cream out of the milk, the gravity or deep can system is used. This is to show the difference between the centrifugal separator and the setting system as to efficiency for creaming. The milk is set in the deep cans under the most favorable conditions possible every day. The result of these experiments, separator vs. deep setting, will be interesting to the farmers of Manitoba when they are published, which will be done in due course of time.

The course which is now on is the butter and cheese makers', which began on the first day of February. This course ends on the 24th of February. The third and last course begins on the 1st of March and ends on the 24th of March. In these courses both butter and cheese are made every day, and all testing is carried on as in the farm dairy course. All students have numbers, and are required to take their places in each day's operations as their respective numbers are called. Every student stands an examination each day, and the final examinations are held during the last four days of each month. In the present courses creamery and cheese factory machinery is used, all work being carried on as it should be in the factories. The oil test churn is operated, and all records of it are kept. Cream of every imaginable condition and consistency is tested and the results are recorded.

There is a very large and comfortable lecture room in connection with the school. Lectures are delivered during the butter and cheese makers' course every morning at 9 o'clock in the butter department; and at 4 p. m. in the cheese department. These lectures are delivered by C. C. Macdonald, the dairy superintendent and director of the school. Besides this, each instructor lectures to his respective class. There is an efficient staff of instructors employed in each department; Mr. D. W. Shunk, in the cheese department, a gentleman who has had a large experience in making cheese, and factory management in Manitoba; Mr. Fred Lutley is in the butter department, and has had many years' experience in making butter and managing creameries in the Western States, and late years in Manitoba; Mr. Harry Piggott is in the milk-testing department. Mr. Piggott was one of the first students in the Manitoba Government Dairy School. He has made good use of his time, and is a very able man in dairy work. His advancement is a good proof of what a man can do when he applies his energies in the proper way, as Mr. Piggott has done.

The school is now situated on Thistle street, close to Main, and is very suitably fitted up for the purpose. There is a large refrigerator built in the school, the temperature of which is always at 36°. The refrigeration is done with ice. The amount of ice used in this refrigerator is very carefully watched and recorded, and at the end of the season the results will be published. Mr. Macdonald, the dairy superintendent, believes that this will be the most suitable refrigerator for all the creameries in Manitoba to adopt.

The Manitoba Government is to be congratulated for this invaluable aid given to the farmers of the province, and all interested in dairying should take advantage of it and take a course of instruction in the school. There is a large number of students' names enrolled for February and March courses. Fifteen were in attendance during the farm dairy course. Visitors are always heartily welcomed at any time during the day. A few hours, or even a whole day, spent in the school is by no means lost time.

A Plea for Winter Dairying.

By L. G. Bell, jun., *Qu'Appelle Stn., Assa.*

In answer to your call for competitive essays on matters connected with dairying, I take for my theme a subject which, however widely discussed in the older provinces, has not received in Manitoba and the Northwest Territories the attention which its importance warrants. I refer to what is commonly called winter dairying, by which term I mean the winter branch of all-the-year dairying, as I would not propose to carry on winter dairying to the exclusion of summer dairying.

Foremost among the advantages to be claimed for this method of dairying is that a better price can be realized for butter in winter than in summer. This fact is too well known to need illustration or enlargement. This argument holds good even in those districts where summer creameries have been established. In fact, it is more than ever the case because of summer creameries, since at the latter the butter is made for consumption abroad, thus creating a scarcity and raising the price in the local markets.

Another advantage is that the annual yield of a cow is much larger when she calves in the fall than if she comes in during spring. The milk flow of a cow that has calved, say in November, will

begin to diminish perceptibly in about six months. But by this time the fresh spring grass is ready to give her milking power a fresh impetus to continue for three or four months more. On the other hand, in the case of the cow that has calved in the spring, the natural shrinkage in the milk flow will be augmented by the drying up of the pastures in the fall. The practice of soiling, or the use of the popular Brome grass, may partly counteract this evil; yet show I unto you a more excellent way.

The most trying time in the life of a calf, that is, the period during which its growth is most liable to be retarded, is during the weaning process. Calves dropped in fall or winter will not be weaned until there is plenty of fresh grass to take up and carry on the development of the young animals when the milk ration is discontinued; so that by the time they are yearlings they have a strong constitution with which to face the ensuing winter. Besides this, there is more time during the winter to give the calves the proper attention than there is when the busy season of outdoor work comes on. We have always been more successful in wintering fall calves than those born in the spring.

The milk from stripper cows is considerably more viscous than that from newly-calved cows. Consequently it is more difficult for the fat globules to become separated from the rest of the milk during the process of creaming, with the result that there is a probability of some butter fat remaining in the skimmed milk. In all-the-year dairying the milk from fresh cows and that from strippers is mixed together, and so this loss is prevented.

In proclaiming the advantages of winter dairying one is likely to be met by counter arguments, and it may not be out of place to anticipate and refute some of these.

The main argument advanced against winter dairying is that it costs more to keep a cow in milk through the winter than in the summer. The truth of this statement I am quite willing to admit. It also costs more to clothe a man in winter than in summer. But a farmer will not allow his son to loaf round in the house all winter in summer garments because of the extra cost of clothing him so as to fit him for outside work. It is poor economy to board a cow for twelve months when she only pays for six. In the animal body there is a constant wasting away of tissue, which must be counteracted by as constant a building up of tissue if the animal is to be kept alive. The material for this upbuilding of tissue must come from the food. When a cow is getting merely enough food to supply this waste, she is getting what is called a "maintenance ration," and will give no milk, nor will she gain in weight. No profits will thus come in, and her owner's capital will be lying idle, while his feed is going to make manure, and a poor quality of manure at that. The maintenance ration must be maintained if the cow is to live, and any food that she gets more than this will be returned either in milk or in beef; so that, properly speaking, this extra food over a maintenance ration is the only expense which should be used as a setoff against the milk produced, and within certain limits, other things being equal, the more of proper food that the cow gets the more return she will make. As a matter of fact it does not take so very much extra feeding to ensure a profit as one would at first suppose. Besides this, supposing a cow is due to calve in the summer; if she be well fed during the winter, and kept in good milking order, her calf will show a good result for this extra attention; and if it be a heifer this good result will still be manifest on her coming to be a mother.

Another argument put forward against dairying in winter is that warm and supposedly expensive stables are a necessity. Part of this statement also I am willing to allow. Warm stables are necessary for all cattle, but they need not be expensive. A warm stable, with accommodation for about fifty animals, can easily be built for \$100. This amount will be saved in one winter because of less food being used and the animals being better for what they eat. Those who are accustomed to the feeding of stock will notice that much more food is eaten on a cold day than on a mild one. Why is this? Just for the same reason that it takes more fuel to heat a house in cold weather than in warm. The animal heat must be sustained. The fuel to maintain it comes from the food, and hence the cow outside and exposed to the severe cold will need a larger maintenance ration than her sister in more comfortable quarters. The Indiana Experiment Station conducted an experiment along this line, and showed that it cost \$13 a winter more to keep a cow outside than in the stable. This shows that a warm stable will pay for itself simply in a maintenance ration, and, therefore, its cost cannot properly be charged against the advantages of winter dairying. A suggestion might be made in this connection about warming water for milch cows in winter. An enterprising American dairyman, of whom I have heard, put the matter of warming water for cows very pithily when he remarked that "Cordwood is cheaper than cornmeal"; that is, it is cheaper to warm the water before the cow drinks it than to give the extra food to be consumed in her body to counteract the chill of the winter-cold water. While writing about cold stables I may say that I have seen some instances of the other extreme being taken, the stables being much too warm. This is almost always accompanied by poor ventilation and overcrowding, which condition is very likely to induce tuberculosis; indeed, the foul effluvium of such stables must be very unhealthy to the cattle confined in them. Too warm stabling has also a tendency to give animals colds through a sudden and violent change of temperature when they are turned out, say for watering.

There is one argument against winter dairying which I cannot refute; but I mention it because I am full of hope that it will soon receive its quietus at the hands of some of our enterprising creamery managers. So far as I know, there are no creameries in Manitoba or the Northwest Territories which carry on operations through the winter, and so we lose the benefits of co-operative dairying for six months in the year. I believe there are some concerns that would have run on during the winter had there been enough cream sent in to pay for the running of the creamery. It is partly to help along this movement that I have undertaken to write to you upon that subject.

How to Prolong the Milking Season.

By Alfred Hutchinson, White Sand, Assa.

How to keep our cows milking in the fall and early winter is a question that is attracting a good deal of attention since the starting of so many creameries through the Northwest. The providing of Brome grass pasture, growth of roots, corn for ensilage or otherwise, green-cut oats and other fodders, are all material helps, and no dairyman should neglect to provide one or more of them. Of them all, probably roots are the most readily available and will be the most used. The special suitability of mangel wurtzels for

this purpose was brought very forcibly to my notice last fall, and as I have not seen it particularly emphasized before, perhaps it may be a help to some of my fellow "creamery patrons" if I give my experience. For several years past I have been in the habit of raising a patch of turnips and mangels, which I commence to feed in September, when the grass is drying off, throwing them in the corral as soon as milking is done in the evening, to the great benefit of the cows and the milk yield. The past season was a very poor one for roots generally, and my turnips were very small, but the mangels did fairly well, so I had a much larger proportion of them than usual. I commenced feeding mangels about Sept. 21st; the average test of five deliveries of cream from Sept. 13th to 23rd was 107 per cent. of butter fat; the average of the next three was 133 1-3 per cent. During the two weeks prior to my feeding mangels it took an average of 22 lbs. milk to make a pound of butter; while I fed mangels alone (about two weeks) the average was 18 1/2 lbs. of milk to one of butter. I then began to mix turnips with the mangels, and the milk was not quite so rich in fat, the average rising to 20 lbs. milk to one of butter. In pounds of butter my gain was two pounds per day from 13 cows. Before commencing to feed we were getting 9 lbs. per day, afterwards 11 lbs, though, of course, as the season advanced, the flow diminished. There was no increase in the amount of milk from feeding the roots, the increase was in butter fat only; but the natural decrease which had been going on for some time, was greatly checked, and later on, when neighbors' were all but dry, mine were still giving a nice lot of milk, and when I got them into the stable and commenced grain feeding, those that were not too near calving again promptly responded by an increased flow. I would not, however, advise any one to feed turnips to milch cows; when the turnips are a good size and fed moderately, there may be little flavor imparted to the milk, but an extra feed, or small turnips with large tops, will inevitably lead to trouble. There is no such drawback with mangels, and from my experience this year, I think they are undoubtedly superior as a feed for butter fat, while there is no danger of injuring the flavor of the butter. I should have said, when speaking of the tests, that I use a separator, so that the percentage of cream is practically the same always, and the variation of the tests represents fairly accurately the quality of the milk. This brings me to another point, the raising of calves on skim milk, and especially on separator milk, which has absolutely no fat left in it. I have been raising calves on skim milk for the past 14 years, and on separator milk for two years. I do not consider separator milk raises the calves quite so well for the first one or two months, though a great point in its favor is that it is always the right heat (if fed at once) and always sweet, so there is not the risk in its use that there is in using ordinary skim milk. On the whole, I prefer crushed oats as a substitute for the butter fat to any other feed I have tried. By feeding oat chop and separator milk I believe my calves are better at six months old than they used to be when fed on hand-skimmed milk at that age; not because the milk is better, for it is not, but because it is always warm and sweet, and the calves never refuse it. The great trouble with milk set in pans used to be the souring in hot weather, which often led to calves going off their feed, and that out of the cans would be too cold (or too hot), which often resulted in the same thing. There are none of these troubles with the separator, and that is a great advantage of separated milk for calf-raising; it is not the quality of the milk, but its

condition when fed. If you want to raise really good calves on skim milk, never feed it to your pigs; give all you have to the calves. I consider that, even after a calf is six months old, skim milk is the very best feed you can give it. Feed your calves through the cows, give the grain to the cows, and you will have milk to feed the calves, and they will do better on it than on grain. I would suggest this as an experiment for our farm managers. Whether it is more economical to feed the skim milk to pigs and grain to calves, or vice versa? And how much grain is two gals. per day of skim milk equal to, as a calf feed? However, the point I look at is this—calves can be raised from five or six months' old on grass or hay alone, but I never yet heard of pigs being successfully raised on a ration of hay only. If the pigs are fed the milk, the calves very often get leave to do the best they can on hay, minus grain; but if the milk goes to the calves, the pigs are pretty sure to get enough grain to keep them going on; so it is safest to feed your calves milk right on, so long as there is any for them. If they can have it until they are nine or ten months old, so much the better for them. For several years past I have put three or four of my latest spring or summer calves in a pen by themselves the following winter, and fed them a little skim milk as long as I had any to spare; no grain. The older calves get oat sheaves or chop, without milk, but I always find the calves that get the milk make the most gain during the winter, though they would often be rather poor to start with.

Stilton Cheese.

A description of the method followed by Thomas Nutall, a celebrated maker of prime Stilton cheese, is given in English exchanges as follows:—

The milk is emptied into a large strainer, from which it passes into the cheese tub, fourteen feet long by four feet wide, made of wood lined with tin and capable of holding 6,000 gallons. By means of steam or cold water the temperature of the milk is brought to 79 deg. Fahrenheit, space having been left between the wood and tin to admit either. Then the rennet made from green cured skin, eleven ounces to ten gallons of water, is added and thoroughly mixed with the milk, which curdles in about one hour and thirty minutes. Next four persons remove the mass of curd with shallow tin bowls, into cloths, which are placed in tin drainers six by two by one-half feet. Iron bars are fastened across these at intervals of one and one-half feet to hold the sides of the cloths. Two of these drainers are placed in a frame two feet apart, one above the other, when the full frame is removed to make room for an empty one, the whole tub being emptied in about twenty-five minutes. The cleansing of the tub and utensils is done chiefly with steam, obtained from a boiler which works a five horsepower steam engine, used to pump the water from a well to a reservoir on the top of the building, and to heat the rooms, grind the curd, etc. The cloths containing the curd are loosely tied by the four corners, allowing the whey to separate partially for one hour, when the taps of the drainers are turned and the whey is drained off altogether. Then the cloths are tightened and placed close together in a large drainer of about the same size as the cheese tub, in which they remain twelve hours. The cloths are again tightened and the curd placed in other coolers. After a while the cloths are removed, the curd is cut up, and in eighteen hours it is coarsely ground. The

morning's and evening's curd are thoroughly mixed with one another, and with fine salt in a proportion of one to sixty. The mass is then put into tin hoops with perforated sides, twelve inches deep by eight inches in diameter, and the filled hoops are arranged on shelves in a brick-floored room of 65 deg. Fahrenheit. In six days the whey will have run off and the cheeses are then removed from the hoops and taken to the binding-room. Here they are shaped with a knife and strong calico bandages pinned round them daily for twelve days, when they get firm and are removed to drying-rooms of 65 deg. Fahrenheit. The cooling is effected by means of water trickling from a perforated pipe, and the heating by steam pipes. Ten pounds of curd placed in the hoops produces five pounds of cheese. Stilton cheese is made twice a day from new sweet milk from the cow, but without the addition of extra cream, as some people seem to think. If one thing requires greater care than another, it is the constant and precise regulation of the temperature, and the avoidance of waste during the various stages of the manufacture.

Testing Milk at Creameries.

As this milk testing is, perhaps, that part of the creamery work and management which is least understood by the great majority of the patrons of the creameries, a short description and explanation here may be of interest to those who wish to make themselves acquainted with the mode of sampling and testing milk as it is done at the creameries and cheese factories.

The fairness and honesty of the Babcock test, when properly manipulated, is too well known to require any further comment here. The object of this article is simply to convey, through a short explanation, a most general understanding of the principles underlying the method of testing, according to which the proceeds are divided among those who furnish the milk.

Sampling of the Milk.—As soon as the milk brought in by each patron is weighed, it should be mixed thoroughly and a representative sample taken for testing, but as the making of daily tests would involve too much labor and expense, a certain method, equally as good, has been adopted during the last few years, namely the composite method of testing. Bottles, labelled and corked, are kept for holding samples of each patron's milk at the creamery or separating station, and in order to prevent souring of the samples of milk in these bottles a small quantity of powdered bi-chromate of potash is put into each before the first sample of milk is put in; a small representative sample should now be added each day—hence the term, composite—for periods ranging from one to two or three weeks according to the present facilities for making the tests.

When the test is to be made the milk in each bottle should be thoroughly mixed and a sample taken from it with the 17.6 c. c. pipette and tested in the Babcock machine in the usual way. The readings of the butter fat will then represent the average quality of milk from which the composite samples were taken during that period.

John Hassard, who has been operating a private creamery on his ranche, 2-26-18, near Lake Dauphin, reports a gain per cow last year of \$35. This is a very satisfactory showing for pioneer dairy work, and he deserves honorable mention.

Skimmings.

The dairy cow is valuable in proportion to the smallness of the feed she requires to produce a pound of butter.

The Minnedosa Creamery Association has re-elected its old directors and leased the creamery for three years to Mr. Neilson.

Birtle creamery disposed of the past season's make to the Parsons Produce Company. The price was a fraction over 18 cents.

Avoid metals about butter; the salt it contains will rust and stain the butter. Use tin for the milk and cream, but wood or stoneware for the butter.

It is reported that the Ballantynes, of Stratford, got 102 shillings per cwt. for their creamery butter. At same date the best American brought 90s.

The Birtle Creamery Co. find they are able to pay 10½ cents to the patrons on a make of 25,000 lbs. They are embarrassed by heavy interest on borrowed capital, but hope to have more patrons next year, so lessening the expense.

Last February a consignment of butter was shipped from Melbourne to London, but owing to the scarcity caused by drouth was recalled by telegram after reaching its destination, and sold at 27c. by auction, leaving still a profit. It looked as good as the day it was made.

It requires skill and close attention to feed a herd of cows properly. W. H. Gilbert, once, when talking on the subject, hit the nail on the head when he said: "There are three things to watch; watch to see if the cow eats with a good appetite, watch to see if she digests it, and watch to see if she turns it into the milk pail."

At Grand Bend, Texas, the man who draws milk to the creamery delivers the milk to each patron on his return trip. Such a combination of effort will help to solve the rural postal delivery problem. Why cannot it be worked in some of our cheese sections, and instead of the milkman returning whey, let him bring home each patron's milk?

When a can of milk freezes the ice forms on the outside and there is a central core that does not freeze. The unfrozen part is richer in fat and solids than the frozen part. Also the ice in the cen-

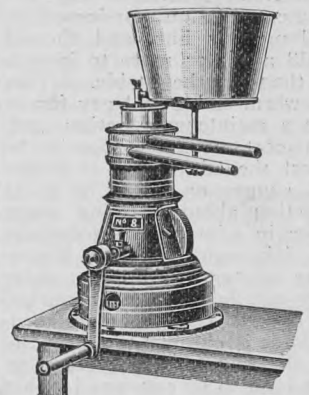
A cow which is thin from liberal milking and one which is thin from want of proper food are in decidedly different conditions. It is useless for anyone to attempt to make a success of dairying unless he is first willing to take advantage of liberal feeding and mating. No matter what kind are kept, the better they are provided for the better will be the net return.

At the London, Eng., dairy show the championship this year, as last, was won by a Shorthorn. Sp. made 65 lbs. milk, 2 lbs. 9 oz. butter in one day, and by points 143½. Another cow that went off her feed, and so lost first place, made 2 lbs. 12 oz. butter from 53 lbs., 5 oz. milk. A very good cross-bred cow was two parts Shorthorn, one part Jersey. A Dutch cow made 71 lbs. milk and 131½ points. Jerseys made up to 126 points and Ayrshires 122½. The extra weight of the Shorthorn, and consequent naturally larger demand for feed is not taken into account in this test, but there can be no doubt that as a general purpose cow in England the dairy Shorthorn has no equal. The three highest places in the open class for actual production went all to Shorthorns, and in cross-breds two out of three were Shorthorn grades, the Dutch cow getting second out of three

tre of the can is richer in milk solids than the ice on the outside. Hence the milk cannot be properly sampled when the milk is frozen, because the unfrozen part is more concentrated than the ice.

Hoard's Dairyman says: "A few rules should always be observed in the handling of a bull. (1) Always use a stick securely snapped into the nose ring. (2) Never walk ahead of the animal and try to pull him along. (3) If he charges you, if possible, hold his head high and if he gets you down, run your finger or thumb into his eye and turn it out on his cheek. The writer once had a severe fight with a mad bull and only saved his life by turning his eye out. When that is done, it is astonishing how quickly a bull will come to his senses."

Be Not Deceived.



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Alexandra
Cream
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THE "MELOTTE," which has been at work since the beginning of January in the Dairy School in this city, we make in three sizes—50, 70 and 85 gallons per hour. It is a miracle of mechanical ingenuity and workmanship. Turns by hand as easily as any 25 gallon per hour machine. It is necessarily a high priced machine, but it is the cheapest in the end to the farmer milking over 20 cows. For full particulars see our 1898 Catalogue just published.

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Agents wanted everywhere.

Address—

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238 & 240 King St., Winnipeg.

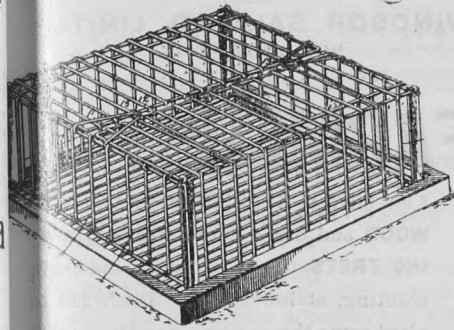
Also Dairy Supplies and Produce. A permanent market is assured to producers of fine Butter. Send us a trial shipment.—S.M.B.

Recent Inventions Relating to the Farm.

Among the recent inventions issued by the U. S. patent office, which might be of interest to our readers are the following:

POULTRY CRATE.

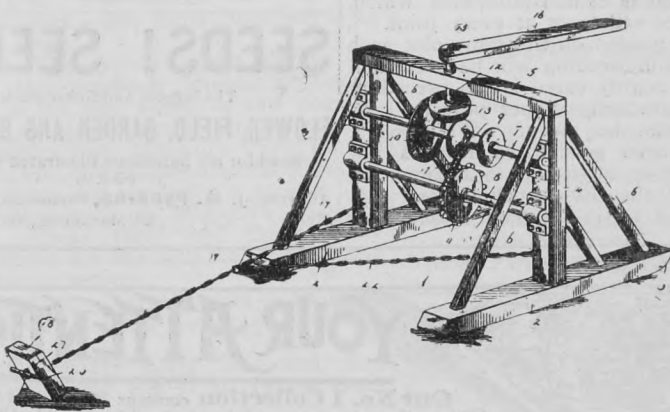
This folding crate is designed to facilitate the return of devices of the character described to the owner, especially when it is desired to economize space, and consists of a crate adapted to contain poultry, provided with a base board having folding side sections, and sections pivoted to the end of the said side sections, top



sections pivoted to the upper edge of said side sections; a notched plate, secured to the end of said sections opposite the end to which the end sections are pivoted and adapted to receive the end portion of the adjacent end section, and the adjustable fastening device. By means of this construction it is claimed that in shipping a large number of empty crates, a much smaller space need be used than by the old way.

STUMP PULLER.

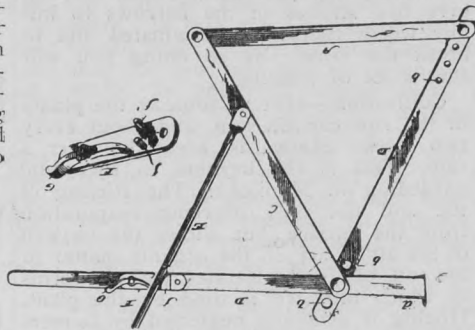
This device is a stump puller, and comprises a frame consisting of a pair of verticle standards mounted on suitable sills or runners and connected at the top by means of a cross-bar running parallel with the standards and journaled in the aforesaid cross-bar is a shaft, on the top is a tongue or draft bar, while at the lower end is a bevelled gear adapted to mesh with a corresponding gear secured to the transverse revolvable shaft on which the



winding drum is mounted, and which rests on bearings on the verticle standards. Directly beneath this shaft is a secondary journal carrying an idle pulley or sprocket, on which the chain designed to be attached to the stump plays and also acts as a guide therefor. This machine can be moved from place to place by attaching the draft to the chain, which, when the stump puller is desired to be stationary, is used to hold it as such through the medium of an anchor, as shown.

LIFTING JACK.

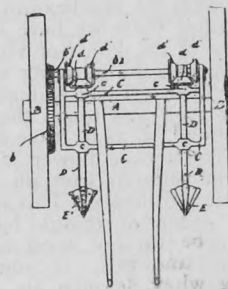
The lifting jack shown in the accompanying illustration is designed to adapt itself to any inequalities of the ground, and consists essentially of a triangular frame, having a lifting lever pivoted between the two angular bars at their apex, which is supported at any pre-determined



position by means of the rod pivotally secured intermediate of the ends of one of the angular bars, and held in engagement with the lifting bar by a cam block and pawl. This device can readily be taken apart for shipment, and can conveniently be carried from place to place without consuming much space.

SWARTH MACHINE.

This machine is for turning and breaking up swarth. It consists of a carriage,

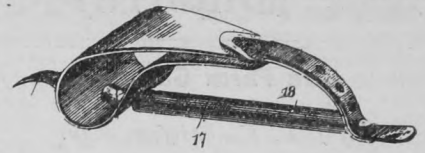


suitably mounted, on which is a driving mechanism operating the revolvable winged cones, extending forwardly in the line of draft of the machine, and said cones are designed to enter the swarth at their forward and pointed ends, so that

the swarth will be gradually lifted and turned by the revolving winged cones as the machine is drawn along the swarth. It will be noticed that the cones are secured on the end of a longitudinally mounted shaft, journaled on the carriage, which is rotated by means of a bevelled gear at its rear end, which meshes with a similar gear mounted on a transversely arranged journal operated by means of a pinion and gear, as shown in the cut.

HUSKING PIN.

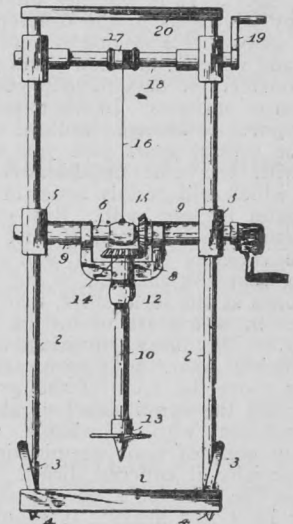
This is a husking pin, and needs very little description, as the construction readily explains itself by a reference to the cut. The elongated bar is provided on one end



with a pin, while the other end passes through the adjusting perforations of the guard-strap, which is doubled upon itself to form a finger-stall, and secured at the bend to the husking pin.

POST HOLE DIGGER.

This device is a post hole digger, the rectangular supporting frame of which has adjustably journaled thereon a transversely arranged driving mechanism, which is adapted to rotate the vertically suspended boring tool journaled in the yoke-shaped



bearings. This mechanism is raised or lowered on the upright guiding rods by means of the windlass, a cord elevating or lowering the said boring mechanism to the desired adjustment. This device is designed to be portable, and it is claimed can easily be operated by one man.

Diamond Dyes are the Only Safe and Pure Dye-Staffs.

Our legislators have enacted stringent laws for the prevention of food adulteration, and as a result our people have been benefitted, and all classes of our population get value for their money.

It would be a boon to the women of Canada if the adulteration act applied to package dyes sold for home dying. Dye-stuffs are now used in tens of thousands of homes, and too frequently valuable goods and materials are spoiled by use of adulterated dyes that should be prohibited by law.

The Diamond Dyes for long years have given the most complete satisfaction. They are the only reliable, pure and fast dyes now before the public — the only package dyes that can stand the most crucial chemical tests.

Diamond Dyes are sold by all up-to-date druggists and dealers. If you meet a dealer who recommends some other make of dye, pause before you buy from him. Such a dealer is working only for big profits; he has no regard for your success and comfort.



The Farm Garden.

By J. B. K., Fairfax, Man.

That the majority of farmers in Manitoba have no garden goes without saying. This is no doubt owing to the rush during the spring and the idea that vegetables are not a sure crop. We have found vegetables one of the safest crops to grow, and if the land is properly prepared the previous fall, a few hours will sow all that is needed for an ordinary family.

After an experience of ten years with a farm garden, I offer a few general suggestions on the culture of vegetables. During the latter five years we have been very successful, taking a good share of the prizes at the local exhibition, without any special effort. It is not my intention to give any advice as to the different varieties to grow. If a record is kept of successes and failures, in a few years you will have considerable data to help you in the selection of varieties. In the experimental farm reports of Messrs. Bedford and McKay for several years past you will find tests with the different kinds of vegetables, which will greatly assist in making a selection to start with. Buy your seed direct from the seedsman, so that you can get the varieties you wish, and not have to take what you can find in the commission boxes at the local store, many of the varieties in which are of no use for this country. We hear considerable about seeds being poor, not germinating, etc. This is more the fault of the grower in not having the conditions favorable, than the seedsman, who, if reliable, will not send out seed of poor germinating quality, especially if ordered direct.

Soil.—The soil for a garden should be neither light nor heavy. It should be of good depth. The subsoil should be of clay, sandy clay or fine sand, as the capillary power (that is the power of drawing up water) of soil is greater as its particles are more finely divided. Gravel and shale have little or no capillary power. Such a soil, with the ground water six or seven feet below the surface, with proper surface cultivation will not dry out in the driest years.

Location.—It is best located near to the house, as you can do considerable, if not the whole, of the work at odd times. It is better fairly level so as to prevent washing, by heavy rains, from high or low parts. A slight slope to the south is not objectionable, as it would be in the case of small fruits.

Laying Out.—Do not lay out in beds; that is an old-fashioned idea, and is only useful in countries with heavy rainfall. Make your rows straight and the full length of the garden. Leave lots of room between the rows; convenience is of greater importance than the saving of land. Press the ground firm below and around the seeds, so that the moisture will come up to germinate them readily.

Tillage.—Do your plowing in the fall; spring plowing leaves the land too loose. Plow deeply; we plow about a foot deep, though you must use your judgment, according to the depth of soil and how deep it was plowed previously, taking care not to bring up too much crude soil in one season. After plowing spread thoroughly rotted manure. With several strokes of the harrows this will be incorporated with the top two or three inches of soil. This mode of manuring has given us the great-

est satisfaction, particularly with the root crops. This did not at all make the hoeing harder. On the contrary, it made the work easier, as the surface was not so compact as where it had not been surface manured. We used a wheel hoe, which will not work where a hand hoe would; but see that the manure is thoroughly rotted without a semblance of straw in it. In the spring, just before each sowing, give two strokes of the harrows to kill any weeds that have germinated and to break the crust. By so doing you will save a lot of weeding.

Cultivation.—Hoe as soon as the plants in the row can be seen, and about every two weeks afterwards, especially after a rain. This is the keynote to successful gardening in Manitoba. The stirring of the soil not only prevents evaporation from the surface, but allows the oxygen of the air to act on the organic matter in the soil, producing nitrates, etc., the forms in which nitrogen is used by the plant. Hoeing is generally neglected by farmers during the rush of harvesting, when it is most needed, as it is then that the vegetables are making their greatest growth. If a person has not a wheel hoe, hand hoeing may be largely done away with by the free use of a common garden rake. Do not raise the hills for vines; they are too apt to dry out. Use thoroughly rotted manure, mixing with about half earth and stamp firmly down. The idea prevails with most farmers and others that squashes and pumpkins are hard to grow. We have found them as easily, if not easier, grown than citrons. This, I think, is owing to the want of fertilization. Unless we hand fertilize them we have little success with any of the kinds of vines. This should be done in the morning soon after the flowers open. Take a male flower, pull the petals off and touch the pistil of the female flower, so as to leave some pollen on it. The female flower is the one which has the embryo fruit on the stem directly under the flower. This is done in the natural order of things by insects, which, however, do not seem to be too numerous in Manitoba. If you do not want the varieties to mix, tie a string, immediately after fertilization, around the petals of the female flowers, so as to close them to prevent the chance of insects entering. When the vines begin to run, mulch all around with rotted manure. Stake down to prevent being blown about with the wind; this should at least be done with squashes and pumpkins, which, if well staked will root at every joint.

Keep the garden on the same plot each year, less hand weeding will be needed, if it has been rightly cared for in preceding years, and gradually deeper plowing year after year can be given. While on a highly manured garden rotation is not necessary, it is advisable to change the positions of the different kinds, so that they will not be in the same place each

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YOUR ATTENTION

Our No. 1 Collection contains 33 full sized packets of the best Vegetable Seeds, sufficient to furnish vegetables throughout the year, and one packet of Flower Seeds, which we will send prepaid to any address in the Dominion of Canada or United States for the extremely low price of \$1, as follows: Bean, dwarf; Bean, pole; Beet, early; Cabbage, early; Cabbage, late; Celery, early; Celery, late; Citron; Corn, sweet; Corn, field; Carrot; Cauliflower; Cucumber; Lettuce, early; Lettuce, late; Musk Melon; Water Melon; Onion, red; Onion, yellow; Parsley; Parsnip; Pepper; Peas, early; Peas, late; Pumpkin; Radish, early; Radish, late; Salsify; Squash; Spinach; Turnip, early; Turnip, sweet; Tomato, and one packet Wild Garden Flower Seed Mixture.

Our No. 2 Collection contains 16 packets for 50c, as follows: Bean, dwarf; Beet; Carrot; Corn, sweet; Cucumber; Cabbage; Celery; Lettuce; Musk Melon; Onion; Parsnip; Parsley; Peas; Radish; Tomato; Turnip, and one packet Wild Garden Flower Seed Mixture.

Our No. 3 Collection contains 8 packets for 25c, as follows: Bean, Beet, Carrot, Onion, Radish, Lettuce, Cucumber, Peas. The above sent post paid to any address on receipt of price. Our Handsome Illustrated Catalogue containing other great offers mailed free to any address.

R. ALSTON, Royal Greenhouse & Seed Establishment, WINNIPEG, MAN.

year. Onions seem to grow better year after year on the same spot.

By burning all rubbish before plowing, and plowing late in the fall, you will not have much trouble with cut worms. Should they make their appearance, top dress the whole of the garden with ashes. If only in one spot, they may be prevented from spreading by surrounding with ashes or lime, which they will not walk over.

A windbreak around the garden, though not altogether necessary, is desirable. It prevents the wind drifting the soil in the spring, breaking leaves and blowing the vines about during the growing season, to say nothing of the moisture it takes along with it. Caragana (*caragana arborescens*) makes a good ornamental hedge for this purpose, though somewhat slower in growth than the native maple.

If you are a beginner, start on a small scale; give thorough cultivation, and enlarge your garden as you gain experience.

Gardening in the Northwest.

By A. Hutchinson, Yorkton.

To garden profitably in this country, there are two very important factors which must be taken into account, but which in the average farmer's garden seem to be entirely lost sight of. They are the selection of the most suitable varieties for the climate, and shelter or protection against winds.

1st, Selection.—In buying seeds, how many go into the store and take almost at random a packet of lettuce, cabbage, beets, peas, corn, tomatoes, cauliflower, beans, etc., and when some of them fail to mature, blame the climate—"Our season is too short," etc. Corn can be matured here almost as surely as wheat, and tomatoes can be grown as easily as potatoes, if you get the right kind. As perhaps it may help some to grow a supply of vegetables for their own use, I will name a few varieties of some of the leading vegetables which I have found most successful here in an experience of over 14 years.

Beans.—Challenge Dwarf Black Wax is the earliest. Golden Wax cannot be beaten for main crop.

Cabbage.—Early Jersey Wakefield or Extra Early Express are sure headers and as early as any; for later and larger heads, Early Dwarf Flat Dutch.

Cauliflower.—The Early Snowball is by far the best.

Corn.—The variety grown by the Indians, and popularly known as Squaw Corn, is the best suited to this country, and in my experience is ten to fourteen days earlier than Mitchell's Early, though I know one of the Experimental Farm reports states that the latter is earliest. To follow Squaw Corn, Mitchell's Early or Cory. These three and Extra Early Marblehead are the only varieties I have ever got to mature.

Cucumbers.—Early Russian is probably the earliest. Long Green is good for main crop.

Onions.—Extra Early Red and Red Wethersfield, but best of all Yellow Danvers.

Peas.—This country suits peas, and I think any variety will do well.

Radish.—The best for general use I believe to be Scarlet Olive. In long radishes, Early Scarlet Short Top, and in round Red and White Turnip.

Squash.—English Vegetable Marrow.

Tomato.—The Atlantic Prize is the only kind I can recommend as of any practical use, but I have not tried the "Earliest of All" or "Early Ruby," recommended by the experimental farms. Sown out of doors soon after the middle of May, you will get a crop of green fruit suitable for

pickling or preserves, and plants raised earlier in the house and put out about June 1st will usually mature fruit, so that it can be ripened in the house, if it does not ripen on the vines. To ripen tomatoes, the best way is to fill any convenient tin vessel, cover, and set in the warmest place available. We use old milk pans, fill one and invert another over it, setting them on a high shelf in the summer kitchen, where it is very warm. In this way we usually ripen one to two bushels every fall, and have abundance for our own use for a number of weeks. In potatoes, turnips, beets, etc., there is not so much choice, at least all kinds will yield a fair return.

I should not wish to imply that the varieties I have mentioned are the only ones that are good, but I find that two out of three of the seed list varieties are quite useless here, and those I have named I have proved to be suitable. Living north of the terminus of the M. & N. W. railway, where wheat is about as risky a crop as in any part of the Northwest, I find the selection of the right kinds of the very greatest importance.

Second only to selection I consider shelter. The garden should be surrounded on all sides by permanent shelter, and if you have none naturally, no time should be lost in sowing or planting some of the many hardy trees and shrubs which the experimental farms recommend for this purpose. In the meantime, I have seen a stockade of poplar poles about 8 feet high, which answered admirably, but I fear would be out of question in most localities, and especially on the open prairies, where shelter is most needed. A sod wall would fill the bill exactly, but, again, few would care to undertake the labor involved. Probably the most feasible method would be to sow strips of some strong growing variety of corn at intervals of 20 or 30 feet across the garden from east to west, letting them stand until the following summer, when another set of rows could be grown to replace the old ones. I think something of this kind has been recommended to provide shelter and gather snow, when starting a plantation of trees from seed. I have not needed to try the plan, but throw out the suggestion as the only practical means I can think of, to provide, at short notice, a shelter for young seeds and tender plants, which is a prime necessity in gardening for profit in this or any other country.

Siberian Researches.

Some time ago, as was noted in these columns at the time, Prof. Hansen, of South Dakota, was sent to Russia to investigate the probabilities of naturalizing in the Northwest the plants of that empire, which might prove of advantage to us in the Northwest. In a letter to the Dakota Farmer, he gives some details of his experience so far. He bought in St. Petersburg some hundred pounds of tree seeds of Siberian growth, and a lot of plants recently introduced from the same country. A species of raspberry from North China he thought very interesting, and bought every plant he could get. At the Agricultural Station of Moscow he found the superintendent had been hybridizing the Siberian crab with varieties of Russian apples, one result being an apple of good size and quality. Guided by an officer of the Russian forestry division, he visited the dry steppes of the interior, where an ample provision has been made by means of model farms and plantations to make the most of the country's capabilities.

The legumes and grasses native to the country are getting much attention, and

their cultivation is being experimented with, but *Bromus Inermis* is found everywhere and about the most valuable. Clover and other fodder plants also give promise of being found well worth trying here. Musk and watermelons show valuable varieties, and seeds from them will be brought here. Prof. Hansen is well qualified for his work, and it is pretty certain that whatever good results from it, we shall in due time get the benefit of.

The Aitken plum, favorably mentioned last spring in *The Farmer*, has given great satisfaction down in Minnesota, and will be freely planted next spring.

A Danish professor has discovered that plants are susceptible to the influence of ether or chloroform, the effect being to waken them instead of putting them to sleep. The plants are also made to grow with great rapidity, in or out of season.

John Wellhouse is called the apple king of the world. His orchards in Kansas consist of 1,630 acres, containing 100,000 apple trees, and are located in three counties. In thirteen years he has picked over 400,000 bushels of apples, and whenever he has a little money to spare he buys a little more land and sets out some more apple trees. Growing apples is his passion, just as gambling is the passion of some men and raising horses is the passion of others.

Soliloquy of an Illused Ox.

O, who would be a beast of the field,
To be goaded on, and have to yield
With fodder scarce, and water scanty,
While master smokes within his shanty?

But little food from morn till noon,
And spring work coming very soon,
Who would expect, but that on ox would die?

Though master's plans and hopes run high.

That manure's the stuff you'll agree,
(For raising up crops) needs no proof,
But when left in the stable, d'yer see,
Just raises us up to the roof.

And this I cannot but mention,
That master would caper with joy,
If some one brought out an invention
Of an automatic stable boy.

Would that he without food might be
For many hours—the same as we—
He then would give us more to eat
And greater care, which would be a treat.

—From a Sorrowing Quadruped.

Five First Prizes in Three Years.

Winner of the Wells & Richardson Co. Gold Medal for best Dairy Butter shown at Montreal Exposition in 1897,

Mr. J. C. Dunn says: "I attribute my success mainly to the purity of Wells, Richardson & Co's Improved Butter Color."

No Mud! absolutely free from Impurities.

Wells & Richardson Co.,

Dear Sirs,

I have used your Improved Butter Color for several years, and have no hesitation in recommending it to all engaged in the dairy business. During the last three years I have succeeded in gaining five first prizes at the Montreal Exhibitions, and attribute my success mainly to the purity of Wells, Richardson & Co's Improved Butter Color.

Yours truly,

John C. Dunn,
Warden, P.Q.



Practical Information for Klondykers.

What will no doubt prove the most practical and best illustrated magazine article on the Klondike gold regions that has yet been published is announced to appear in Frank Leslie's Popular Monthly for February. It is written by Henry Clay Clover, a well-known resident of Seattle, and treats the subject in a simple yet exhaustive manner. After describing the various expeditions that have set out from Seattle for Dawson City, the author gives some valuable and interesting information to those about to embark for the gold regions, including a list of necessary provisions, utensils, etc., to last a man for a year. This article is supplemented by one giving a general description of Alaska, its resources, people and customs, by R. H. Herron. There will be more than thirty fine half-tone illustrations of scenes and people in the gold regions and other parts of the Territory, and a handsome map of Alaska, 17x23 inches, showing the location of the places of interest along the Yukon and the Klondike. Those who are preparing to take advantage of the opportunities presented in Alaska, and those who are only indirectly interested in the new El Dorado, should by all means read these articles.

We know the great cures by Hood's Sarsaparilla are genuine because the people themselves write about them.

Their gentle action and good effect on the system really make them a perfect little pill. They please those who use them. Carter's Little Liver Pills may well be termed "Perfection."

Dyspepsia in its worst forms will yield to the use of Carter's Little Nerve Pills, aided by Carter's Little Liver Pills. They not only relieve present distress but strengthen the stomach and digestive apparatus.

Angus McKay, superintendent of the Indian Head Experimental Farm, writes: "Am pleased to hear how well The Nor'-West Farmer subscription list is increasing. It deserves to have an increase of 100 fold."

Messrs. A. E. & Geo. E. McKenzie, sons of the late F. B. McKenzie, seed merchant, of Brandon, have taken up the business founded by their father. They are making a specialty of seed oats, field grass seeds, etc., and are prepared to fill orders in carload lots or smaller quantities. Consult their advertisement elsewhere in this issue.

A well-known pharmacist, Mr. D. L. Thompson, whose ad. may be seen in this paper, carries a full supply of homoeopathic and biochemic remedies, physicians' and family books. These remedies are invaluable. No family can afford to be without a case of remedies. Send for Homoeopathic Manual, giving full and valuable information for the family, illustrating how to treat disease in its simple forms and keep well.

We are in receipt of the annual catalogue issued by A. P. Stevenson, Nelson. His stock is all home-grown and reliable, embracing fruit, shade, evergreen and ornamental trees. Mr. Stevenson's twenty

years' experience as an experimentalist makes his opinion in regard to the whole question of fruit and tree propagation specially reliable, and intending buyers should write him early for his catalogue and price lists.

We notice Messrs. Fleming & Sons, of Brandon, are issuing a catalogue of seeds recommended by Mr. Bedford, of the Experimental Farm, as the right kind for westerners to use. This is the correct thing, and we trust our readers will give their orders to this firm and secure for themselves the sure result of a profitable crop. There is no doubt many Manitoba gardens are a failure on account of not taking advantage of the experience of an institution like the Experimental Farm.

R. A. Lister & Co. Ltd, who are always at the head of the procession in their line of business, in this issue advertise a new cream separator, "The Melotte," which they guarantee to deal with the milk of 25 to 40 cows as quickly, easily and efficiently as their famous Alexandra cream separators deal with the milk of 8 to 20. The new machine is for use by large farmers, whose herds require separators of extra capacity. Before offering it to the public it has been tested a month in the Dairy School. Our readers should obtain fuller information of this machine.

The eleventh annual bulletin of the Wisconsin State Farmers' Institute has just reached us, and we hope in a future issue to make some use of the varied and valuable information it contains. They do things on a grander scale than is done here, and their institute gatherings are attended by several hundreds of farmers at whatever point they decide to meet. They will hold 106 of such grand rallies this spring and distribute 60,000 copies of this bulletin. Any of our readers may have a copy in paper covers for 25c. or 40c for cloth, by sending that sum to The Farmer office. Wisconsin has been singularly fortunate in the men selected to control these institutes, and Mr. McKerrow, the present superintendent, worthily follows the good man who went before him.

Thomas Hagyard is the fortunate winner of the first prize, a cream separator donated by Hon. T. Greenway and valued at \$115, for the highest number of pounds of butter obtained from cream delivered by any one patron to the Crystal City creamery. Mr. Hagyard's total yield for the season amounted to 1,776 pounds. The second prize, \$40 cash, was awarded to Wm. Weaver, and the third, \$20 cash, to J. W. Gorrell.

Permitting a cow to fail in her milk for want of suitable food is bad management; even if she can be restored to her full flow, which is doubtful, it takes more feed to do it than would have been required to keep her in good milking trim from first to last. Cows to do their best must be pushed with feed of the proper kind, and the more the better. You can't get milk without feed any more than you can get meal without grain. To get the best work from a mill it must be run to its full capacity—no corn in the hopper, no meal in the spout. So it is with cows, no feed, no milk; little feed, little milk; plenty of good feed and proper care, plenty of milk for a long time.

The heifer intended for dairy purposes should never be allowed to become fat. It does not hurt an old dairy cow to put on fat while she is dry, because she has formed the milking habit and the fat she stores up will be used when she comes in milk. The heifer, however, has not formed the habit of milk-giving, and no matter how strongly she may be bred in dairy lines, she will be injured if allowed to get into the habit of turning her feed into fat

during the early period of her life. Milk-giving not only comes by heredity but is a habit. We often see children go wrong whose fathers and mothers are the very best people in the community, because in spite of being well bred they formed bad habits. The same thing is true in animals. —Creamery Gazette.

The Souris Creamery Association held its annual meeting on January 17th, and elected directors with the following officers: President, W. G. McLaren; vice-president, J. Y. Bambridge; secretary-treasurer, W. H. Menary. It was resolved that this year the business be run under the direct control of the directors. The officers will visit the tributary points, such as Deleau, Findlay, Pipestone, Reston, Melita, Napinka, Lauder, Hartney, Menteith, Beresford, Carroll, Nesbitt, and Methven, to make arrangements for securing supplies of cream. Prospects for a very successful season's operations are hopeful.

At Winnipeg the other day two men from Morden were sentenced by Chief Justice Taylor to five and three months in jail for stealing wheat from the barn of George Cram, which they afterwards sold at Winkler station. In a country situated as we are such offences cannot be too severely punished.

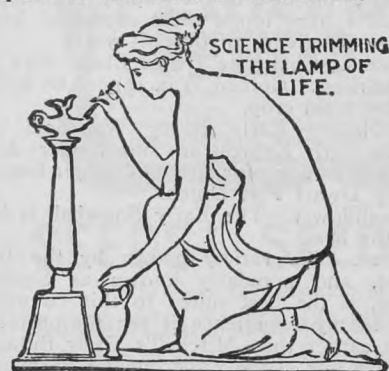
Free Trial To Any Honest Man

**The Foremost Medical Company
in the World in the Cure of
Weak Men Makes this Offer.**

**HEALTH AND ENERGY ASSURED.
HAPPY MARRIAGE, GOOD
TEMPER, LONG LIFE.**

In all the world to-day—in all the history of the world—no doctor nor institution has treated and restored so many men as has the famed **ERIE MEDICAL CO.** of Buffalo, N. Y.

This is due to the fact that the company controls some inventions and discoveries which have no equal in the whole realm of medical science.



So much deception has been practiced in advertising that this grand old company now for the first time makes this startling offer:—

They will send their costly and magically effective appliance and a whole month's course of restorative remedies, **positively on trial without expense to any honest and reliable man!**

Not a dollar need be advanced—not a penny paid—till results are known to and acknowledged by the patient.

The Erie Medical Company's appliance and remedies have been talked about and written about all over the world, till every man has heard of them.

They restore or create strength, vigor, healthy tissue and new life.

They quickly stop drains on the system that sap the energy.

They cure nervousness, despondency and all the effects of evil habits, excesses, overwork, etc. They give full strength, development and tone to every portion and organ of the body.

Failure is impossible and age is no barrier.

This "Trial without Expense" offer is limited by the company to a short time, and application must be made at once.

No C. O. D. scheme, no bogus philanthropy nor deception, no exposure—a clean business proposition by a company of high financial and professional standing.

Write to the **ERIE MEDICAL COMPANY, BUFFALO, N. Y.**, and refer to seeing the account of their offer in this paper.

Live Stock Impounded.

The following have been impounded since last issue of The Nor'-West Farmer :—

Portage la Prairie, SE qr. of Sec. 17, T. 13, R. 7 W.—One mare, color bay, with small white spot on forehead; one horse, color bay, coming two years old; one horse, color bay, with white stripe on forehead and lame on front right foot. D.W. McCuaig.

Winchester, Sec. 27, T. 4, R. 24.—One gray mare, aged. J. A. Burgess, Lauder.

Girtle, Sec. 10, T. 16, R. 25.—One cow, dark color, with Jersey back, star on forehead, white flank, white tipped tail, white hind feet, age about 10 years. Andrew Nicholl.

Springfield, Sec. 2, T. 12, R. 4 E.—One sorrel mare, with white star on forehead, flock of left hind foot white, age about four years; also one light bay mare, with full white face, hind feet white nearly to knees, age about two and a half years. Angus McDonald, Bird's Hill.

Rockwood, Ward 1.—One mare, color brown, star on head, branded J H on left hip, left hind foot white; one pony mare, color red, white face, four white legs and some white on belly. John McQuat.

St. Francois Xavier, Ward 5.—One pony mare, color dark brown, little white on the head and a little white on the right hind foot, about 16 or 17 years old. Paul Lafrance.

Birtle.—One heifer, color red, white on belly and face, left ear slit, 2 years old; one heifer, color roan and white, white arrow on face, 2 years old. W. Barnes.

Woodlands, Pound No. 4, Sec. 10, T. 14, R. 2 West.—One yearling steer, color roan, red neck, white forehead. H. Marchand.

Elton, Sec. 1, T. 11, R. 19.—One gelding, color bay, about six years old, white star on forehead.—John W. Pottinger, Brandon P. O.

The General Purpose Cow.

In the last report issued by the Kansas State Board of Agriculture, 256 pages are devoted to "cow culture." There are already over 500,000 cows in that state and the leaders of dairy thought in Canada and the States give in that report their answers to the following question:

"Given a section of country such as Kansas, with abundance of forage and grains, where the cows are mainly of Shorthorn blood on a "common" or "scrub" foundation, reared primarily for beef rather than milk production, what breeds or types of sires would you advise using with a view to butter or cheese dairying, without wholly or largely ignoring or abandoning beef production?"

Considering the weight of names, the jumble of ideas in the answers is rather bewildering and it is quite certain that the same number of practical farmers engaged in the production of both beef and butter could have given much more reliable answers. Our own Prof. Robertson who is really one of the men most familiar with the whole case, says:—"Preferably Ayrshires—as a breed there are few failures among them, and their influence is strong to increase economical production in the progeny from whatever they are used on."

Professor Dean (Ontario) says: "Ayrshire sires of good size, yet having the dairy form, would probably give best results. If milking strains of Shorthorn sires could be secured they also would prove equally valuable, or even more valuable, than the Ayrshire. In Canada it is difficult to get milking Shorthorns."

"We say ditto to every word. Professors Dean and Robertson would not care to dissent. It is curious to find that in the almost tropical climate of Queensland, Ayrshires of good quality have been freely imported with satisfactory results, while in New South Wales the Jerseys have greatly deteriorated."

Of the American authorities, whose answers are given, Jones, of The Kansas Farmer, says: "If beef is to come in the dairy type, the Shorthorn comes nearest filling the bill."

Professors Hoecker, Wallace, Wilson, and Wing, Mr. Goodrich, Mr. Gurler, Professor Curtis, Mr. Dodge, Commissioner Adams, and many others, answer in favor of a Shorthorn sire of noted milking strain, but a large proportion of them express themselves doubtfully as to the success from a dairying point of view.

Mathieson (ex-president Minnesota Dairymen's Association): "I use the Jersey sire on such stock in my own herd with very satisfactory results."

Governor Hoard, and some others, favor the Holstein or Guernsey, but it is plain they know little about what butchers think of these as beef producers. We know that a big Ayrshire bull on a grade Holstein cow makes a good general purpose cow, and only wish we had known it sooner. The man who does not know enough to keep as far as possible from Jersey blood in a beef steer is a tenderfoot, no matter how high he stands as a specialist in dairy work.

The Fecundity of Wheat.

In sixteen years, granting that but one crop were planted a year, and allowing a single kernel, well cultivated, the whole wheat world for the development of its progeny, the single kernel would have multiplied into 76,886,718,570 bushels of wheat. The first year the single kernel would produce some 20 heads, say 300 grains of wheat after the inferior ones had been thrown away. The next year the 300 grains would ripen into enough to plant a fiftieth of an acre. The next year a twentieth of an acre would be planted, yielding two bushels of good seed wheat. These two bushels would be sufficient to seed two acres of ground. Allowing that they would yield but 15 bushels of good kernels that year, at the spring time of the fifth year there would be enough grain to produce a harvest of 450 bushels. The next year the increase would be fifteenfold, and from that point on the ratio is one of enormous progression, reaching nearly 80,000,000,000 bushels at the end of the sixteenth year. These figures are not, of course, to be demonstrated in any actual experimentation, but they indicate the enormous possibilities of a new species of wheat when once it is found to be better than the wheats which have preceded it.—Trade Review.

A farmer at Bottineau, North Dakota, reports that there has been much disappointment in the crop yields there. He says those farmers who were expecting about 20 bushels of wheat per acre are getting from 9 to 11, and those who expected 9 or 10 are getting from 5 to 6. Thousands of acres were turned under here. The June frosts and drouth were too much for it. If we figure the number of acres sown, Rolette county will not average more than 5 or 6 bushels per acre, and Bottineau 8 or 9. Another report from Grand Forks says some threshers there charged 9 cents a bushel for wheat. The yield was too poor to allow it being done for less.

—The United States Department of Agriculture and several teachers on its best experiment stations keep dinning into the farmers ears that they ought to keep on selecting their very best seed and sow that only. Twenty years' experience have made it as plain as a pikestaff that our Red Fyfe wheat is of such quality and so well adapted to the soil and climate that we can in almost every season find as much seed by carloads as would sow ten times our cultivated area. There is no need to go fussing and collecting, as they recommend, a few scores of the picked heads from a whole field, and breeding from that. This is the elect and tested home of the choicest milling wheat in the world, and what they want to do is to buy here by the carload all the seed wheat they want. It is here all the time, and the cheapest seed they can ever get hold of.

The English Millers' Gazette says:—"It is a mistake, we think, to put No. 1 hard Duluth wheat and No. 1 hard Manitoba wheat on a level with No. 1 northern, which may sometimes be within 3d, and at other times be 9d to 1s per qr. worse in quality than Duluth or Manitoba. It is suggested that a standard be formed of, say, No. 1 northern wheat, Duluth certificate, and that any other red wheat weighing not less than 60 lbs. per bushel be allowed to be tendered, if necessary, at a difference in price to be fixed by a committee of experts appointed for the purpose."



If life is worth having it is worth taking care of. Recklessness does not pay, either in our work or our pleasure. When people read of a young man who has been killed while performing some reckless feat on a toboggan or at some other hazardous sport, their sympathy is mixed with surprise that any human being should thus carelessly risk life.

There are thousands of men who are recklessly risking their lives while they go about their common every-day avocations. They over-work, they do not take sufficient time from business or labor to eat or sleep or rest, or to care for their health. Outraged nature throws out danger signals, to which they pay no heed. They suffer from bilious or nervous disorders, from sick headache, giddiness, drowsiness, cold chills, flushings of heat, shortness of breath, blotches on the skin, loss of appetite, uncomfortable sensations in the stomach after meals, loss of sleep, lassitude and trembling sensations. These are the advance symptoms of serious and fatal maladies.

All disorders of this nature are cured by Dr. Pierce's Golden Medical Discovery. It restores the lost appetite, gives sound and refreshing sleep, makes the digestion perfect, the liver active. It purifies the blood and makes it rich with the life-giving elements of the food. It is the great blood-maker and flesh-builder. It makes the body active and the brain keen. It is the best of nerve tonics. Thousands have testified to its merits. No honest dealer will urge upon you a substitute for the little extra profit it may afford.

The man or woman who neglects constipation is gathering in the system a store of disorders that will culminate in some serious and possibly fatal malady. Dr. Pierce's Pleasant Pellets are a safe, sure, speedy and permanent cure for constipation. One little "Pellet" is a gentle laxative, and two a mild cathartic.

THE NOR'-WEST FARMER

ESTABLISHED 1882.

The only Agricultural Paper printed in Canada between Lake Superior and the Pacific Coast.

THE STOVEL COMPANY,
PROPRIETORS.CORNER McDERMOT AVE. AND ARTHUR ST.
WINNIPEG. MANITOBA.

SUBSCRIPTION to Canada or the U.S., \$1 a year, in advance. To Great Britain \$1.25 (5s. sterling).

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Transient advertisements, for less than three months, 15c. a line (each insertion). Terms for longer periods on application.

All advertisements estimated on the Nonpareil line—12 lines to an inch. A column contains 128 lines.

Copy for changes in advertisements should be sent in not later than the 20th of the month to ensure classified location in the next month's issue. Copy for new advertisements should reach the office by the 30th of each month.

TO OUR SUBSCRIBERS.

It is the intention of the publishers of this paper to admit into their columns none but reliable advertisers, and we believe that all the advertisements in this paper are from such parties. If subscribers find any of them to be otherwise, we will esteem it a favour if they will advise us, and we will at any time give our personal attention to any complaints which we receive. Always mention this paper when answering advertisements, as advertisers often advertise different things in several papers.

LETTERS.

Either on business or editorial matters, should be addressed simply "THE NOR'-WEST FARMER, Winnipeg," and not to any individual by name.

Look at Your Subscription Label.

When you pay your subscription, watch the name label on the next two issues which you receive. On the first issue following payment, it might not give the correct date—the type-setting machine may make an error and the proof not corrected before mailing day. But if the date is not correct on the second issue please notify us by postal card.

Look at the date label now. Are you in arrears? Are you "paid up" to the present date? The label will tell you. If in arrears, please renew promptly.

WINNIPEG, FEBRUARY, 1898.



CHEAP MONEY.

Next to the advantage of cheap railway rates and reduced tariff may well be put the possibility of borrowing money on a sound financial basis and at a moderate rate of interest. The money lent on land a dozen or fifteen years ago, on purely speculative values and at a high rate of interest, generally by mortgage companies, has not been a satisfactory investment, when looked at from any point of view. A hustling agent of one of these companies rushed round the country urging everyone to borrow, the sole motive for his zeal being the commission he was to draw at the end of the month. Men that without such advances would have had to hang on to their farms and learned to make the most of them, got into debt as fast as they could, sold their outfits quickly and skipped out to the States to try the same game over again in Dakota. Opportunity makes the thief and money foolishly lent tempts the borrower to be a rascal. The drain on the purses of farmers in hard

times to pay usurious lenders in this country has been simply enormous. We have been like the woman who had an issue of blood for twelve years, and spent her all and suffered many things of many physicians, yet "nothing bettered, but rather grown worse." But for the lucky harvest of 1897, many a farmer now full of hope would have been selling out half in despair. It is all very well for boom oracles to talk about the great advance made in the prosperity of the country, but it is only the bull dog tenacity of a goodly proportion of our settlers, and sometimes the difficulty of making a trial elsewhere, that has kept many of our more heavily mortgaged farmers from throwing up the sponge. When the small country banker came in to lend on chattel mortgage at 20 to 25 per cent., hope and despair were pretty evenly balanced, with the chance of a drop on the wrong side. But we have had in the scarcity of wheat at other points a blessed leverage out of our worst difficulties, and 80-cent wheat has given hope to the very hardest pushed and confidence and prosperity to every man that was independent of the mortgage companies and chattel mortgage usurers. With this bright assurance comes the natural question whether, with our improved conditions generally, and especially in view of the increased value of the land available for wheat growing, we could not lessen the drain on our incomes by getting a more favorable rate of interest on all our outside obligations. Poor security and high interest must go together. But if, in the increasing value of our land and the buoyant prospects of the country generally, we have a pretty reliable forecast of permanent prosperity, why should not the interest on what we owe be lowered in proportion to the added value of the security we have to offer?

The feasibility of the suggestion we make as to the reasonableness of our farmers asking at once for a reduction in the rate of interest on their mortgage and other indebtedness, is practically demonstrable by the example of the Emigrant Savings Bank of New York City, one of the most powerful institutions of the kind in the world, with assets amounting to fifty-seven millions of dollars, has over twenty-seven millions loaned on bond and mortgage. This great concern has just reduced its rate of interest on mortgage loans to four per cent, and it is most likely that its example will have to be followed by a good many similar institutions in the States now holding western investments. Kansas, for example, has also had a good year and has gladly taken the opportunity to return to the east a very large amount of the borrowed money, the interest on which has been a heavy incubus on that as well as other Western States. But, to get back their money because the borrower is too well off to need it longer is not a cause for gratulation to wealthy financial corporations, and they had better lend to prosperous farmers at 4 or 5 per cent. than keep it locked up in the vaults of New York banks. Five per cent. on good security is worth more than 8 or 10

with the risk of the borrower leaving a run-out farm on the lender's hands. We want farmers on this side the line to look at this change of front among money investors across the line, and make up their minds to call for better terms here on both permanent and chattel loans from this time henceforth. The country has got by this time pretty well weeded out of the worst class of borrowers, and the good men ought to have what they want for the legitimate expansion of their business on better terms now and henceforth than ever before.

PRIZE COMPETITIONS.

The prizes offered for papers from our farmer readers have attracted keen competition by writers far apart. Several of them will be found in this issue, and we shall find room for others later on. The awards made by the gentlemen who have gone over these papers are as follows:—

No. 1, Stockmen—Rob Roy, Campbellville, Man.; Fred. T. Skinner, Katepwe, Assa.

No. 2, Dairymen—L. G. Bell, Jr., Qu'Appelle Station, Assa.; Alfred Hutchinson, White Sand, Assa.

No. 3, Poultry—J. Dermody, Montgomery, Assa.; S. B. B., Winnipeg, Man.

No. 4, Gardeners—J. B. K., Fairfax, Man.; A. Hutchinson, Yorkton, Assa.

No. 5, General Readers—J. H. McClure, Balmoral, Man.; Thos. Laidlaw, Rothbury, Assa.

CO-OPERATIVE FARMING.

Every now and then some cheerful enthusiast steps in to encourage us to say something about the advantages of co-operation, in farming, of course, as well as in other lines of enterprise. That style of doing business is all very well when you can fix your own terms as to the quality and price of the goods supplied to customers, make sure of the cash for every dollars' worth sold, and, after paying the managers nice comfortable salaries, return a profit or bonus, whatever it may be called, of 10 or 20 per cent. on all shares and purchases. By this plan of making things pleasant all round the system of co-operative trading has been immensely boomed and co-operation in all lines set forth as a panacea for all the social evils of the age. But there are cases cropping out now and then in the lines most favored by the co-ops. that take a little of the gloss off these fancy pictures. One of these was recently handled at London, Eng., where a huge and extremely flourishing concern, with large capital and great prestige was brought to book by the Bacon Curers' Association, a combination organized mainly for the detection of frauds in the bacon trade. The high-toned association, its manager and employees were found guilty of selling American hams, smoked in Scotland, and sold as Danish and Irish at an increase of 30 to 40 per cent. on their actual value, and fined in the aggregate £75. It cost the

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Better Running.

Why, yes, your Engine is a hundred times better off if you keep it running and have a good competent engineer.

Why store it up for 10 months out of the year—and pay interest on that when by investing a little more you make your idle engine turn in money.

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A STANDARD CHOPPER, A LATH MILL,
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A WOOD SAW RIG,**

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ADDRESS—

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prosecuting society more to expose these frauds perpetrated by a flourishing and wealthy company, whose directors belong to the elite of the naval and military profession. One salesman admitted that he had also assisted in an extensive transformation of low-priced colonial into Irish butter. The fine is trifling in proportion to the gains netted by these scoundrelly acts, but the shame of the exposure is not so easily wiped out.

Several years ago Mr. William Lawson, brother of the well-known Sir Wilfrid, engineered a farming union on the same pleasant basis. It paid well for a year or two, and its praises were in every man's mouth. But bad seasons and low prices supervened, and the co-ops. who had no money invested found wages a good deal below what other men were paid by individual farmers, who had, of course, to make good the deficit out of capital. The well-meaning president had to sell outfit and stock at low-down prices as compared with their original cost, and the farming Utopia gave place to the stale old plan of individual investment and control.

The latest development of the same gauzy theory, this time in the west of Scotland, has just reached its penultimate stage. The Scottish Co-Operative Farming Association (Limited, of course,) was started as an annex of a remarkably flourishing wholesale co-operative concern in Glasgow. This style of farmers are great on book-keeping, but even with the highest possible valuation of their assets in the farming line they found a deficit in 1895 of £853 odd, in 1896 of £590, and then dismissed their showy manager to make room for an overseer on each farm directly responsible to the board of directors. Urgent appeals were made to the landlords of these farms for reductions of rent, but they proved callous to all such appeals. Last year there was a thorough valuation made, not by what their assets stood for on the books, but of what they were worth on the market, the result being that they found themselves in the

hole at the end of the year to the tune of £5,344, or \$26,720, and there is now a petition before the courts to wind up the Co. so far as farming is concerned. Inflated stock-taking evidently won't work in farming, and when these assets come under the hammer the deficit is most likely to be greater than even the present estimate shows.

The Farmer has from time to time been able to show, as it does in this very issue, how well family co-operation has done in the new west. But it takes such men as the Youngs and Sam Hanna and the rest of those rustling individuals round Griswold, to develop to their best possibilities the farming resources of the west, and the Lister Kayes and others not here to be named to bring out the full virtue of limited co-operation in bonanza wheat and stock raising.

FIRE INSURANCE.

Perhaps our readers have all heard of that big fire at Winnipeg the other day. They may not be aware that a great part of the loss was covered by insurance, some of which had only got as far as the proposal stage, but which will still be paid. Mutual insurance men occasionally revile the big insurance concerns because they charge heavily, but we have yet to hear of any mutual society that would pay up if only the preliminary steps had been taken. Then it is to be remembered that the companies contract to pay the whole loss, while the mutual will only insure two-thirds. This policy of the mutual societies we think safe and commendable. Some queer stories are told of fire risks taken by careless agents of the big companies that soon developed into total losses, with grave possibilities of incendiaryism. The mutual companies are generally represented by hard-headed directors and agents who very properly refuse to take the note of any man whose moral and financial standing is doubtful. The

"moral risk" is a very important feature in fire insurance. One man could be reckoned on as vigilant and honest above suspicion in handling fire, while the next would be a bad risk if taken at a double premium. It is not fair that the careful and honest man should bear a share of the risk incurred when a shyster is insured, and it is a tribute to the quality of their insurers that the mutuals are suffering much less from fire losses than their rivals. Insurers should study up these matters for themselves, but whatever they may do, one duty is clear—Don't delay starting, and once insured be punctual in renewing. It was the Irishman who was never kilt before, who got killed when he least expected it.

—It is now some years since, on the pretext, utterly unfounded as every Canadian stockman knows, that a Canadian ox landed at Deptford had a lung affected with pleuro-pneumonia, the English authorities prohibited the importation of all Canadian cattle not meant for immediate slaughter. In that dear old country, so vigilantly guarded from every possibility of foreign contagion, there were last year 2,155 outbreaks of swine fever, which necessitated the slaughter of 40,432 pigs. These figures are in each case lower than for 1896 or 1895. There were also seven outbreaks of pleuro-pneumonia—460 animals were found diseased, and 741 were in addition slaughtered, as having been "exposed" to infection. As to anthrax, 883 animals were attacked; glanders, 1,577 animals. Is it not high time that we were prohibiting the importation of anything on four legs from a country which, however much we all admire it, is so badly tainted with so many varieties of dangerous disease?

The municipality of South Norfolk will offer two cash prizes for essays on the destruction of noxious weeds.



Progressive Western Poultryman.

A representative of The Nor'-West Farmer took advantage of one of our "balmy" January mornings to pay a visit to the Oak Grove Poultry Yards, St. John's, Winnipeg, owned by Chas. Midwinter. We give in this issue two views of Mr. Midwinter's place, one of his comfortable residence, and one of his poultry sheds. That the name Oak Grove is most applicable can easily be seen from the engraving. The location is a very good one, being on a bluff, bordering on a large slough or lake, which at one time was the original bed of the raging Red river, but which now curves off to the

in their order for one day. The run for geese and ducks leads down to the water, and this is divided off by wire netting, and adjoining it are their breeding houses. Mr. Midwinter does not use artificial heat in the main building. It is well built, and he has several ventilators in it which are open almost all the time; in fact, there is one about five inches in diameter leading from the hallway out at the roof which is always open. He has the roosts all arranged adjoining the hallway, which makes it very convenient for cleaning, an operation that is performed twice a week. Under the dropping boards are arranged the nests, properly protected from all dirt, and each having a hinged door near the passage. When the eggs are gathered they are all numbered as taken from the various pens, and in his residence he has a good cabinet, with drawers, each labelled to suit the various breeds, where they are kept for shipment. By this method of handling the eggs there is not much danger of them being mixed. When shipped, each egg is wrapped in paper, and all packed in cedar panel shavings, to ensure safe delivery, Mr. Midwinter never yet

cases better than those of the east, this being a similar experience to that of our leading stockmen in the matter of live stock.

Crossing Turkeys.

How to procure new blood in a flock of turkeys is a problem which has not been solved by farmers who raise the Bronze or ordinary common birds, as no kinds of poultry have been so closely inbred as they. If a bird that is one-fourth or one-half "wild" can be produced it will be an advantage. Some farmers make a practice of using Bronze gobblers one year and White Holland the next, as the great difference in color is the best evidence that the birds are not akin, but even then it will be but a few years before the flock is akin too closely to both the white and the bronze kinds. When a gobbler is procured from a distance it is possible that his parents may be from the neighborhood to which he is going. Whenever a gobbler can be secured that is part "wild" (by a wild gobbler being used) it will be a sure mode of securing new blood. An excellent plan is to keep a record of the flock that is from whom procured; select the strongest and healthiest hens, and get a gobbler from an entirely different breed if it can be done. Inbreeding is at the foundation of the loss of a large number of the young turkeys which die annually, and if this can be avoided it will be a great gain to those who aim to make a profit from them.—Poultry-Keeper.



Residence of Chas. Midwinter, Oak Grove Poultry Yards, Winnipeg, Man.

south of his place about a half mile. Three acres of this lake are on his property.

On driving in, immediately at your right, are situated two or three large yards, well shaded with trees, in which he raises the young birds, and adjoining these is a house solely for them, 10x30. Entering the buildings we find a well having an ample supply of good fresh water all the year round. On the left of this the geese and turkeys are kept, each having a pen 14x14 for winter quarters, with good ventilation all the time, so that they may be hardy birds, and adjoining this is his stable and driving house, with granary overhead.

Returning through the pump house, we enter the main poultry building, which is 14x54 feet. A 4 ft. hallway passes along the entire length on the north side. This house is divided off into nine pens, each with a window on the south side, and runs leading off to the south. The pens are numbered as follows: 1, Langshans; 2, White Guineas; 3, Pearl Guineas; 4, Liht Brahmas; 5, Derbyshire Red Cap; 6, Black Minorcas; 7, Barred Plymouth Rocks; 8, Black Javas; 9, Houdans; 10, S. L. Wyandottes. In the summer each pen of birds has the entire run of the farm

having had one complaint of any being broken in transit.

Besides handling first-class poultry, he takes a hand in market gardening and flowers, and manages to keep himself well occupied on his seven acres of rich soil. There is a root house on the farm 16x30, a greenhouse 14x60, and under a part of the main poultry building a cellar 14x30. The birds are fed a large amount of vegetables, much of it whole, causing them to work—a great benefit in winter. Last year he grew some fine specimens of the tobacco plant, some being six feet high; the small stems and leaves of this he put into the nests, it being a splendid preventive against lice, as they will not go near it.

While in the residence we were shown a large pile of prize tickets, which he has won at various shows. These he purposes using to good account next season in papering the wall of an office he contemplates erecting. Mr. Midwinter is greatly pleased with this fall and winter's business, having been compelled to refuse some orders. He finds that the people of the west are realizing that it is not necessary to send east for good birds, Manitoba bred being just as good, and in many

The poultry raisers in Manitoba report excellent sales this winter; evidently people of the west prefer western raised stock.

The delightful weather of this winter has been a great boon, the result being that the hens have got right down to business in great shape.

The entries for the Poultry Show promise to be very large from the rural districts. The farmers are beginning to realize that it is not always the man from town who can carry off the prizes.

Ed. Marston, secretary of the Manitoba Poultry Association, has had an unprecedented demand for copies of the prize list. This year the association had a larger supply printed than formerly, but already it is about exhausted. Many points in the west promise to forward a large number of entries.

The executive of the Manitoba Poultry Association are leaving no stone unturned to make the coming exhibition in Winnipeg a big success. The hall secured is very much better than where it was held last year, and from the many enquiries received by the secretary there promises to be a very large list of entries.

At a meeting of the Manitoba Poultry Association, held on 29th inst., it was decided to accept for exhibition and competition any variety of fowl mentioned in the American Standard. As our readers are aware, there are many varieties that are not bred by our Manitoba fanciers, hence they do not appear on the prize list, but should there be any by this decision, they may be entered with the secretary same as others.

John Hunter, of Roseland, boasts of having the earliest chickens in Manitoba. At least, part of the eggs were laid in the last week of December, and the rest in the fore part of January. The eggs were placed under the hen on January 6, and out of 13 eggs 12 chickens were hatched, which are now about a week old, and doing well. The nest was made

in coal ashes, with a sprinkle of chaff to line it. The hen was a White Leghorn. She has been either laying or setting continuously for over a year, and has never moulted in that time.

When F. W. Sprado, manager of the Manitoba Hotel, undertakes to do anything you may safely count on it being well done. Last year he very kindly donated a silver cup, value \$10, to the Manitoba Poultry Association for the highest scoring hen at the exhibition. The cup was won by Chas. Midwinter, Winnipeg, one of his Houdan hens scoring 94½ points. Mr. Midwinter called at The Farmer office last week to show us the cup, and it certainly is a handsome one, and we doubt not but that it cost Mr. Sprado considerably more than the amount stated. It is beautifully mounted on a black ebony stand, satin finish, with gold lining, and suitably engraved.

The Conventions.

The middle week of February, from 15th to 18th, inclusive, promises to be one of great activity and usefulness to our varied rural interests. Beginning with the Dairy Association, in addition to the ordinary routine of business and election of officers for the coming year, there will be interesting practical papers and addresses, with discussions to follow by C. C. Macdonald, Dairy Superintendent; W. M. Champion, Reaburn; D. Munroe,

Sheep and Swine Breeders' Associations, with the following programme: Address by the chairman; address of welcome, by A. J. Andrews, Mayor of the City of Winnipeg; response by J. D. Hunt, Carberry; "Brome Grass and Clovers," by S. A. Bedford, Brandon; address by J. C. Snell, Snellgrove, Ont.; "Type of the Full Blood Dairy Animal," by O. C. Gregg, superintendent of Farmers' Institutes for State of Minnesota.

Thursday afternoon: "Winter Care and Management of a Dairy Herd," by Jas. Bray, Longburn, Man; discussion led by David Munroe, Winnipeg. "Why Manitoba Should Excel in Stock Growing," by William Sharman, Souris, Man; discussion led by K. McIvor, Virden. Question Box—In charge of S. A. Bedford, Brandon. "Lumpy Jaw (Actinomycosis)" by F. Torrance, B. A., D. V. S., Winnipeg. "Fads in Stock Raising," by Walter Lynch, Westbourne. "Ranching in Alberta," by J. R. Craig, Meadow Creek, Alta.

Thursday evening: Joint meeting of the Pure Bred Cattle, Sheep and Swine Breeders' Associations. Chairman, Hon. Thos. Greenway. Addresses by J. R. Craig, Meadow Creek, Alta., and J. C. Snell, Snellgrove, Ont. "How Shall We Use the Full Blood for the Improvement of our Dairy Stock," by O. C. Gregg, superintendent of Farmers' Institutes for the State of Minnesota.

The last, and not the least, interesting convention will be that of the Horticultural Association on Friday, with the fol-



Oak Grove Poultry Yards, owned by Chas. Midwinter, Winnipeg.

Winnipeg, and F. Lutley, of the Dairy School. One of the most important features of the Dairy department will be a convention of representatives from the leading butter and cheese factories of the province, similar to those recently held at Regina and Calgary. All the delegates have not yet been appointed, but the following names have already been forwarded to the secretary: Wm. Grassick, Pilot Mound; Jas. Morrow, Silver Springs; S. Larcombe, Birtle; E. Downton, McGregor; J. D. Hunt, Carberry; T. Dickie, M. P. S., Souris; A. R. Fanning, Newdale; W. B. Gilroy, Austin. Angus McKay, Indian Head, will represent the Northwest Territories and contribute of his valuable experience.

The Stock Breeders have prepared a most interesting and attractive programme. Besides the usual routine of business there will be papers on "Selection, Care and Management of a Pure Bred Herd of Swine," by F. W. Brown, Portage la Prairie; discussion led by S. J. Thompson, P. V. S., Carberry. "The Place Sheep should Occupy on a Manitoba Farm," by James Riddell, M. P. P., Rosebank; discussion led by W. W. Fraser, Emerson. Question Box—In charge of S. A. Bedford, Brandon. "How to Produce the Hog the Packer Wants at a Profit," by Andrew Graham, Pomeroy; discussion led by J. A. McGill, Neepawa. "A Piggery, and the Management of Swine," by Angus McKay, Indian Head; discussion led by R. L. Lang, Oak Lake.

On Wednesday evening will be held a joint meeting of the Dairymen's, Cattle,

lowing programme, in each case a short time will be allowed for discussion: Friday afternoon: Addresses and reports of officers; election of officers for 1898; discussion of the general policy and work of the society. "Fruit Growing," by A. P. Stevenson, Nelson, Man. "Winter Protection of Plants," by Rev. Prof. Baird, Winnipeg. "Importation of Fruit and Nursery Stock," by R. R. Scott, Winnipeg. "Protection of Birds," by Rev. W. A. Burman, president of the Winnipeg Botanical Club. "Bee Keeping," by S. A. Bedford, Brandon.

Friday evening. "Trees and Shelter Belts," by Angus McKay, Indian Head. "The Preservation and Renewal of the Western Timber Supply," by E. F. Stephenson, Crown Timber Agent. "Ornamental Shrubs and Hardy Herbaceous Plants," by S. A. Bedford, Brandon.

As already announced, the Manitoba Poultry Show will also be held the same week.

All persons in the country who wish to be present at any of these meetings should apply to their local station agents for a special ticket, which, if countersigned by G. H. Greig, will entitle the holder to a return fare of one-third the usual rate.

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Brandon Experimental Farm.

Mr. S. A. Bedford favors us with the following report of results from all the best sorts of grain grown on the Brandon Experimental Farm last year. Compare them with your own experience as a guide to your own sowing for 1898.

WHEAT.

Test of varieties; most productive dozen out of thirty-seven varieties sown; all grown on summer-fallowed land, and sown with a drill. The old standbys, red and white Fyfe, as usual, proved to be among the most productive varieties. Velvet Chaff, or, as it is generally called here Blue Stem, which is thought by some farmers in this district to be superior to Red Fyfe, is, as usual, five days later than that variety, and less productive.

NAME.	When sown.	When ripe.	No. days maturing	Yield per acre.	lbs per bu
				bu. lbs.	lbs.
White Fyfe	April 26	Aug. 19	115	40-30	61
White Russian	"	"	"	36-20	62
Red Fyfe	"	"	"	35-20	61
Golden Drop	"	"	16	112	34-10
Monarch	"	"	20	116	34
Crown	"	"	14	110	33
White Connell	"	"	23	119	32-40
Wellman's Fyfe	"	"	"	32-30	61
Blenheim	"	"	16	112	31-30
Velvet Chaff or Blue Stem	"	"	24	120	31-20
Vernon	"	"	13	109	31-10
Emporium	"	"	20	116	31

OATS.

Sixty-one varieties of oats were sown on the Brandon Experimental Farm, and the yield varied from 20 to 83 bushels per acre, but the field used for the varietal tests suffered so badly from the wind storm of 29th May, and the severe frost of the three following days, that the returns from these plots are altogether unreliable as a test of varieties, and the publication of the returns would only tend to mislead. A much safer guide is found in the accompanying table of average yields obtained from 15 of the leading varieties during the years 1892 to 1896, inclusive, all favorable years for an accurate test. All were grown on summer-fallowed land. Size of plots, one-tenth acre.

VARIETY.	Years included	Average yield per acre.	Average days maturing
		bu. lbs.	
Banner	1892-93-94-95-96	88-20	105
Abundance	1892-93-94-95-96	80-10	105
Holstein Prolific	1892-93-94-95-96	75-4	106
Rosedale	1892-93-94-95-96	74-14	105
Victoria Prize	1892-93-95-96	73-13	104
White Russian	1892-93-94-95-96	72-20	108
Archangel	1892-93-94-95-96	71-8	104
Golden Beauty	93-94-95-96	70-17	110
Abyssinia	1892-93-94-95-96	70-6	108
Improved Ligowa	1892-93-94-95-96	70-2	106
Early Gothland	1892-93-94-95-96	68-32	107
Siberian	1892-93-94-95-96	64-24	116
Black Tartarian	1892-93-94-95-96	61-28	114
Columbus	93-94-95-96	59-19	106
Welcome	1892-93-94-95-96	59-14	100

TWO-ROWED BARLEY.

All grown on summer-fallowed land, sown with a drill, the best out of eighteen varieties sown. The three most productive varieties are cross-bred ones, originated at the Dominion Experimental Farms.

NAME.	When sown.	When ripe.	No. days maturing	Yield per acre.	lbs per bu
				bu. lbs.	lbs.
Sidney	May 13	Aug. 17	96	46-32	53
Pacer	"	"	20	99	46-12
Nepean	"	"	"	46-02	50
French Chevalier	"	"	23	162	43-26
Thanet	"	"	24	103	42-04
Victor	"	"	20	99	42-04
Emerson	"	"	19	98	40-20
Bolton	"	"	17	96	37-04
California Prolific	"	"	20	99	36-22
Prize Prolific	"	"	24	103	34-38
Beaver	"	"	20	99	34-08
Rigid	"	"	17	96	32-24

SIX-ROWED BARLEY.

Grown on summer-fallowed land, sown with a drill; most productive dozen varieties out of twenty sown. Excelsior, Champion and Success are all beardless varieties, and are very light in weight. Trooper, Summit, Nugent and Surprise are all cross-bred varieties, originated at the Experimental Farms.

NAME.	When sown.	When ripe.	No. days maturing	Yield per acre.	lbs per bu
				bu. lbs.	lbs.
Trooper	May 13	Aug. 17	96	51-12	50
Summit	"	"	19	98	50-10
Excelsior	"	"	11	90	49-08
Champion	"	"	"	47-34	37
Success	"	"	10	89	44-38
Common	"	"	11	90	43-26
Rennie's Improved	"	"	16	95	50-10
Nugent	"	"	17	96	41-02
Odessa	"	"	"	40-30	48 1/2
Phoenix	"	"	"	39-18	51
Surprise	"	"	20	99	38-46
Petschora	"	"	25	104	35-40

PEAS.

This grain has for the first time in the history of the Experimental Farm suffered from spring frosts, but only in spots exposed to the severe wind storm which immediately preceded by frost. In spite of this drawback, the yield has been fair and the sample excellent. The four most productive were all cross-bred varieties which originated on the Experimental Farm. All grown on summer-fallowed land. Soil, a stiff clay loam. Forty varieties were sown, but only the most productive 12 are given.

NAME.	When sown.	When ripe.	No. days maturing	Yield per acre.
				bu. lbs.
King	April 17	Aug. 26	131	42-40
Alma	"	"	"	40-40
Bedford	"	Sept. 6	142	40
Trilby	"	Aug. 26	131	38-20
Mummy	"	"	25	130
Bright	"	Sept. 6	142	37-20
Carleton	"	"	4	140
Creep	"	Aug. 26	131	36-40
Anchor	"	"	"	36
Centennial	"	"	"	35-40
Victoria	"	"	30	135
MacKay	"	"	26	131

DIFFERENT WAYS OF TREATING SUMMER FALLOW FOR WHEAT.

A few farmers, living on rich clay loam, state that they can cut or feed off a crop on partially summer-fallowed land and still get as large a return as can be obtained from a bare summer-fallow. From the following tables it would appear as if early plowed fallow would at least give a fair amount of pasture in the latter part of the season and also produce as good a crop of wheat the following year as a bare fallow. It is proposed to continue this line of experiments for a number of years, until reliable conclusions can be reached. Soil, a rich clay loam; grain sown with a drill; cattle first turned on pastured lot when the oats were nine inches high; oats on the third plot cut when in the milk stage.

Lakeview Herds and Flocks.



My breeding yards of Barred P. Rocks, Light Brahmas, Rose C. Brown Leghorns, Black and Silver L. Wyandottes, Mammoth Bronze Turkeys and Pekin Ducks, are all imported and winners of 35 1st and 5 2nd prizes from 41 entries in 1897. A few choice B.P. Rock Cockerels and young Turkeys for sale. Orders booked for eggs. Poland China Swine, from imported parents, with pedigrees, at reasonable prices. Correspondence solicited.

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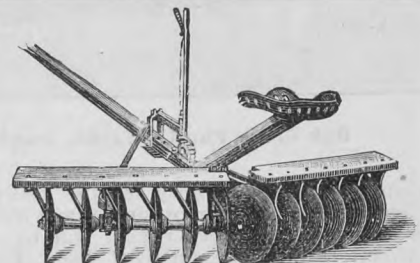
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Mention this paper.

BARGAINS IN FARM LANDS.

Notwithstanding the demand for farm lands, particularly in the eastern half of the Province, and the consequent advance in prices, I have resolved to offer the lands in the annexed list at the old reduced figures, and in some instances at prices lower than they have yet been offered at.

I desire to sell quickly and cheaply and on terms that will suit anyone, namely, one-tenth cash, balance in nine equal annual payments; interest at 6 per cent.

Where preferred, I shall also sell on the crop payment plan.

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1.—S.E. $\frac{1}{4}$ 18, 10, 6 E . .	80 acres under cultivation, house and stable, near Plympton . .	ACRES	PRICE
2.—S.W. $\frac{1}{4}$ 24, 7, 7 E . .	Log buildings and large cultivation, near Giroux P. O . .	160	\$ 1000
3.—Lot 5, Lorette . . .	Improved farm, cheap, superior buildings, 4 miles E. of Lorette . .	160	500
4.—Lots 20 and 21, Lorette . .	Inner and outer 2 miles, comfortable buildings and large cultivation, at Lorette . .	177	1300
5.—Lot 66, St. Anne's . .	House and large cultivation, close to Village of St. Anne's . .	352	2000
6.—S.W. $\frac{1}{4}$ 27, 7, 7 E . .	Unimproved, on the Seine River, near Giroux . .	200	900
7.—Lot 42, Lorette . .	Partly improved—valuable farm, near Lorette . .	160	700
8.—N. W. $\frac{1}{4}$ 13 and S. E. $\frac{1}{2}$ of N. E. $\frac{1}{4}$ 14, 10, 4 E . .	Partly improved, 10 miles East of Winnipeg . .	200	800
		210	1100

STONEWALL AND BALMORAL DISTRICTS.

9.—N. W. $\frac{1}{4}$ 23, 14, 1 W . .	Unimproved, fine dry prairie, near Argyle . .	160	\$ 800
10.—N. $\frac{1}{2}$ 30, 11, 1 W . .	Excellent buildings and large cultivation, at Oswald P. O. . .	320	1200
11.—N.E. $\frac{1}{4}$ 28, 14, 1 W . .	Concrete house and partly improved, near Oswald P. O. . .	160	350
12.—S. W. $\frac{1}{4}$ 36, 15, 2 E . .	Comfortable buildings, 12 acres cultivated, N. W. of Balmoral . .	160	500
13.—S. W. $\frac{1}{4}$ 32, 15, 2 E . .	Comfortable buildings, 12 acres cultivated, 4 miles North of Balmoral . .	160	500
14.—S. E. $\frac{1}{4}$ 6, 13, 2 E . .	Unimproved, good wheat land, 5 miles N. of Balmoral . .	160	600
15.—N.E. $\frac{1}{4}$ and N. $\frac{1}{2}$ of S. E. $\frac{1}{4}$ 16, 15, 4 E . .	Unimproved, good wheat land, 10 miles N.W. of Selkirk, near Claudeboye P.O. . .	240	1000
16.—N. W. $\frac{1}{4}$ and N. $\frac{1}{2}$ of N.E. $\frac{1}{4}$ 34, 12, 2 E . .	Unimproved, good wheat land close to Stony Mountain . .	240	Offers invited
17.—S. W. $\frac{1}{4}$ and N. $\frac{1}{2}$ of S. E. $\frac{1}{4}$ 35, 12, 2 E . .	Unimproved, good wheat land . .	240	Offers invited
18.—Southerly 110 acres of S. E. $\frac{1}{4}$ 12, 16, 1 E . .	Improved, North of Balmoral, in good locality . .	140	\$ 350

HEADINGLY, OAKVILLE AND HIGH BLUFF.

19.—Lot 21, St. Francois Xavier . .	Improved, good location . .	203	\$ 800
20.—Lots 47 and 48, Headingly . .	Buildings and largely cultivated; farm is next to Village of Headingly . .	180	2000
21.—S. W. $\frac{1}{4}$ 10 and N. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ 3, 11, 5 W . .	Wild land, 2½ miles from Oakville, cheap . .	240	800
22.—N. W. $\frac{1}{4}$ and W. $\frac{1}{2}$ of N.E. $\frac{1}{4}$ 23, 9, 1 W . .	Wild land, level prairie, six miles East of Starbuck . .	240	600
23.—W. $\frac{1}{4}$ 26, 11, 3 W . .	Unimproved, fine prairie, close to St. Eustache . .	320	1200
24.—N.E. $\frac{1}{4}$ & E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ 4, 9, 2 E . .	Unimproved, fine prairie, near La Salle Station . .	235	800

PORTAGE LA PRAIRIE AND MARQUETTE.

25.—S. E. $\frac{1}{4}$ 7, 11, 7 W . .	No improvements, considerable timber, 9 miles S. W. of Portage la P . .	160	\$ 500
26.—N. $\frac{1}{2}$ and S.E. $\frac{1}{4}$ 2, 13, 3 W . .	One mile West of Marquette, fine hay land . .	480	1000

RED RIVER LOTS.

27.—Lot 4, St. Andrews . .	10 miles North of Winnipeg, a bargain . .	188	\$ 1100
28.—Lot 29, St. Andrews . .	Outer 2 miles only, unimproved . .	41	250
29.—Lots 72, 73, 74, St. Norbert . .	At St. Norbert Village, 10 miles S. of Winnipeg, a bargain (will sell these lots singly or collectively) . .	865	7500
30.—Lot 14, St. Norbert . .	At Glenlea P.O. 15 miles South of Winnipeg, well improved, with bldgs . .	154	2000
31.—Lot 613, St. Agathe . .	16 miles South of Winnipeg, improved, with buildings . .	155	1600
32.—Lot 559, St. Agathe . .	At Village of St. Agathe, unimproved, all farm and location . .	160	1200
33.—Lot 232, St. Agathe . .	Will sell separately } Opposite St. Jean, im- or en bloc, a bar } proved. gain . .	160	900
34.—Lot 231, St. Agathe . .		160	900
35.—Lot 236, St. Agathe . .		160	900
36.—Lot 532, St. Agathe . .	Opposite St. Agathe Village, wild land 110 acres broken, nice farm, good buildings, 4 miles S. of Morris, on East side of River . .	240	1500
37.—Lots 290 and 292, St. Agathe . .	About 4½ miles South of St. Jean, on East side of River, improved good buildings . .	107	1000
38.—Lot 180, St. Agathe . .	About 3½ miles South of St. Jean, on East side of River, improved . .	131½	600
39.—Lot 202, St. Agathe . .	Part of the Village of St. Jean, valuable property, improved . .	123	2200

LETELLIER AND ROSENFELD DISTRICTS.

41.—S. E. $\frac{1}{4}$ 32, 2, 1 E . .	Improved, buildings and cultivation . .	160	\$ 140
42.—S. E. $\frac{1}{4}$ 30, 2, 1 E . .	Unimproved, good stock farm . .	160	110
43.—S. W. $\frac{1}{4}$ 34, 2, 1 W . .	Improved, buildings, cultivation and fencing . .	160	100

MORDEN DISTRICT.

44.—S. W. $\frac{1}{4}$ 36, 1, 6 W . .	Unimproved, South of Morden . .	160	\$ 50
45.—N. E. $\frac{1}{4}$ 24, 1, 6 W . .	Improved, South of Morden . .	160	60
46.—N. E. $\frac{1}{4}$ 1 and S. E. $\frac{1}{4}$ 12, 4, 6 W . .	Highly improved, buildings, fencing and cultivation, a beautiful farm, 80 acres just broken, 225 acres in all under cultivation. One mile from Nelson . .	320	400

DOMINION CITY AND ST. MALO.

47.—S.E. $\frac{1}{4}$ 35 and N. E. $\frac{1}{4}$ 26, 1, 4 E . .	Excellent half section, improved by cultivation, near Ridgville P.O. . .	320	\$ 150
48.—E. $\frac{1}{2}$ 36, 1, 4 E . .	Good stock farm, hay abundant . .	320	80
49.—N. E. $\frac{1}{4}$ 6, 1, 5 E . .	Log buildings and cultivation, 12 miles East of Emerson . .	160	60
50.—S. E. $\frac{1}{4}$ 28, 1, 5 E . .	No improvements } Near Ridgville (P.O. . .	160	40
51.—N. W. $\frac{1}{4}$ 28, 1, 5 E . .	No improvements } . .	160	40
52.—S. E. $\frac{1}{4}$ 28, 2, 5 E . .	No improvements, nr. Greenridge P.O . .	160	40
53.—N. W. $\frac{1}{4}$ and N. $\frac{1}{2}$ of S. W. $\frac{1}{4}$ 18, 4, 5 E . .	Wild land. } These parcels are all in the St. Malo Settlement, East of Otterburne. . .	240	50
54.—S. W. $\frac{1}{4}$ and S. E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ 30, 4, 5 E . .	Wild land. } . .	240	50
55.—S. W. $\frac{1}{4}$ 10 and E. $\frac{1}{2}$ of S. E. $\frac{1}{4}$ 9, 5, 3 E . .	Wild land. } . .	210	50
56.—E. $\frac{1}{2}$ 36, 2, 4 E, and W. 20 acres of S. W. $\frac{1}{4}$ 31, 2, 5 E . .	Improved, large cultivation, close to Greenridge P.O. . .	440	200

MANITOU AND SOMERSET DISTRICTS.

57.—S. W. $\frac{1}{4}$ 36, 2, 9 W . .	5 miles South of Manitou, unimproved, cheap farm . .	160	\$ 50
58.—W. $\frac{1}{2}$ 36, 4, 9 W . .	Excellent stock farm near St. Leon . .	320	100
59.—S. $\frac{1}{2}$ 13, 6, 10 W . .	Improved, North of Somerset, near Beacousfield . .	320	130

BALDUR AND CARTWRIGHT DISTRICTS.

60.—S. E. $\frac{1}{4}$ 20, 4, 13 W . .	A large cultivation, log buildings, near Pasadena P.O . .	160	\$ 70
61.—All 13, 4, 14 W . .	Excellent section, unimproved, 5 miles South of Baldur, a bargain . .	640	300

OAK LAKE, VIRDEN, ELKHORN & BEULAH DISTRICTS.

62.—E. $\frac{1}{2}$ 28, 15, 27 W . .	Slightly improved, beautiful situation on Birdtail Creek, near Beulah . .	320	\$ 100
63.—S. W. $\frac{1}{4}$ 16, 7, 24 W . .	Improved, large summer fallow ready, near Findlay . .	160	40
64.—S. E. $\frac{1}{4}$ 20, 7, 24 W . .	Improved farm, good location, near Findlay . .	160	80
65.—S. $\frac{1}{2}$ 18, 9, 28 W . .	Large cultivation and small house, South of Elkhorn . .	320	100
66.—N. W. $\frac{1}{4}$ 10, 9, 26 W . .	House and large cultivation, near Virden . .	160	60
67.—N. E. $\frac{1}{4}$ 19, 8, 23 W . .	Small cultivation, near Oak Lake . .	160	50
68.—S. E. $\frac{1}{4}$ 28, 8, 27 W . .	Unimproved, good farm near Reston . .	160	40

MINNEDOSA AND RAPID CITY DISTRICTS.

69.—N. W. $\frac{1}{4}$ 13, 14, 19 W . .	Unimproved, good quarter at Riverdale Station . .	160	\$ 50
70.—W. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ 18, 16, 22 W . .	Near Strathclair, unimproved . .	80	20
71.—E. $\frac{1}{2}$ 22, 14, 21 W . .	Good stock farm, plenty of hay, unimproved . .	320	80
72.—S. W. $\frac{1}{4}$ 21, 14, 20 W . .	Good stock farm, unimproved . .	160	40
73.—S. $\frac{1}{2}$ 1, 14, 21 W . .	Fine place for mixed farming . .	320	100

ARDEN AND NEEPAWA DISTRICTS.

74.—S. W. $\frac{1}{4}$ 16, 15, 13 W . .	3 miles east of Arden, buildings and cultivation . .	160	\$ 90
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CITY OF WINNIPEG.

75.—Lot 125, Maria Ave . .	Fort Rouge. Large frame house on stone foundation, being Street No. 375 . .		\$ 250
76.—Lot 5, in Blk. 10, McWilliam Street . .	No. 440, frame house on lot, 28 x 112 to a lane . .		100
77.—Lots 1 and 2, Blk. 12, W. S. Main Street . .	Oriental Hotel and stores opposite C. P. R. Depot. All site . .		1400
78.—Lots 165 and 166, Blk. 3, Hudson's Bay Reserve . .	No. 271 Broadway, fine residence and grounds . .		80
79.—Lots 552 and 553, Hudson's Bay Reserve . .	Corner of York and Carlton Sts., will yield 10% net on investment. All residential property . .		Offer invite

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Methods of Manuring.

There are three ways in which manure is usually handled. One is to haul out and spread every day it is made. Men in the lead everywhere as practical farmers do this. There is more time in winter to do it, and it is done—once for all. Very little of the virtue is lost by evaporation or otherwise, and if some of the straw is rather rough they try to burn it off some fine day in April. It is rather a fault in this burning process that the winds have so dried it out that sometimes nearly everything is burnt and only the ashes left. This is a most unprofitable way to manure, and the seldomer it is tried the better. If the plan of letting it lie till the wheat is all put in, and then plowing for barley, be prudently tried, the straw will be brittle, and a rolling before or after the seed is put in will prevent the rotted straw from doing much harm. The essence of profit in this case is to work so as to save every drop of the moisture in the land by prompt handling at every stage of the work. As was well put by Mr. Cochran in last month's Farmer, the manure winter spread, and not too stinted in quantity, makes a splendid mulch that saves all the sap there is, and ensures a good crop. Careless handling will mean, as a rule, less than half a crop of barley, and this mode of manuring should never be tried for wheat. Barley next the manure and wheat the next season is the best plan in dealing with winter spread manure.

Another way is to have a deep hole somewhere convenient, into which the horse, cow and swine manure may be dumped as taken from the stable, there to rot, as it will often do, even in winter, and it is astonishing how foul seeds will germinate in this way, even in winter. To provide manure for roots and a little corn, this is perhaps the very best way to work. The straw rots and the waste from evaporation of useful gases is not excessive. The prevention of fire fang must be looked to.

A third way is to allow the stock to go in loose boxes, where the liquid and solid excrements are mixed with the bedding and trampled down, to lie where it is made for a fortnight, a month, or three months if so desired. More of the total value of the excrement is saved in this way than by any other, and the straw gets rapidly rotted by the heat set up in the solid mass. We would be very glad if a few farmers would give this plan a trial. Should the manure, after being so stored, be hauled out and spread on the snow, the loss of virtue by evaporation may be limited and the trouble of plowing under much reduced. Objection has been made to this plan that the gases engendered by the heating process are unwholesome for the cattle. But German investigators have shown that much less loss takes place in this way than by hauling the manure outside to rot in heaps. The trampling consolidates the mass and saves one-half the virtue that would go off if the rotting is done in the field.

C. J. Ivens, of Virden, has for a good many years been doing all his manuring on his timothy sod. After one or two crops of hay have been taken the manure from the stables is spread on the grass. This mulch encourages fresh growth, the cattle trample and break down the rough straw, which is much more brittle in summer than in winter. The foul seeds are germinated, and if wholesome, as pig weeds are, the weeds are eaten.

All the plans so far tried seem to depend on doing a less area pretty thoroughly in preference to lighter manuring. And all the best men believe in the necessity and wisdom of manuring. If some

of them will drop us a line, long or short, giving their views and experience on this topic, we shall be glad to find room for it.

Government Seed Distribution.

Wm. Saunders, Director of the Experimental Farm, Ottawa, has issued the following circular:—"The annual distribution of samples of some of the best varieties of seed grain to farmers, for test in different parts of the Dominion, has, during the past ten years done much to direct attention to the importance of sowing the best sort of seed, and in many sections of the country this introduction of new sorts has resulted in a decided improvement in the yield and quality of the grain produced. Nearly all the varieties sent out are grown on the Experimental Farms and are selected from among those which, after being submitted to careful and repeated tests, have produced the largest average crops of grain of good quality. Having received instructions from the Honorable Minister of Agriculture to continue this useful work and make another distribution during the coming season, I shall be pleased to receive applications from all who desire samples. As heretofore, one sample of one variety only can be sent to each applicant, and the distribution will be confined to samples of wheat, oats, barley, field pease, Indian corn and potatoes. Among the varieties of grain to be distributed during the coming season will be some of the more promising of the new cross-bred sorts which have been produced at the Experimental Farms. All the grain sent out will be carefully cleaned and true to name. To prevent the disappointment which occurs when parties receive samples of varieties they already have, it would be well for each person applying to name two or three sorts which he would prefer, arranging them in the order of preference; when, in case the stock of the first-named variety is exhausted, the second or third could be substituted. As it is proposed to only send these samples on personal, single application, it is important that every farmer should apply for himself. Lists of names will not be considered. All letters addressed to the Central Farm at Ottawa may be sent free of postage, and the samples, weighing three pounds each, will be sent free to the applicants, through the mail. The distribution will begin early in December, and as the stock is limited and the applications will be filled in the order in which they are received, those sent in early will have the advantage. Applications may, however, be sent in at any time before the 1st of March; but after that date the list will be closed so as to ensure the sending out of all samples in time for early sowing."

Air as a Fertilizer.

Some men seem to find it very difficult to realize that the atmosphere can be a source of supply for the fertilizing material needed for the development of plant life.

Let us look at this matter for a moment. The air absorbs certain materials almost as readily as the soil absorbs moisture. We all know how easily air becomes foul; and it is only because it absorbs and holds gases that have been given off in one manner and another from various substances. In the decomposition of all substances, and in the burning of them, gases are given off and are of necessity taken up in the air. Many of these gases and mineral elements are just

what are needed for the feeding of plants, and it is one of the wise provisions in the economy of nature that they may be readily availed of for that purpose.

It only remains for man to put his soil in the condition that will best make it a receptacle for what the atmosphere has to offer. Every rain and snow that falls washes the air of a portion of these elements and brings them down to earth, besides the amount that is being constantly drawn down by the subtle alchemy of nature. If the soil is in proper condition, these are readily absorbed and retained.

The value of the atmosphere as a fertilizer is shown by the fact that land which is simply let lie fallow gradually increases in richness and producing powers. Farmers are apt to call this "resting" the land, but it is far more than that. It is feeding it as well. But the value of this resting process is greatly enhanced by turning the soil over more or less frequently, exposing the subsoil to the action of the air and to storms; and this again is enhanced by having the soil so fine that the atmosphere can act directly upon every particle, instead of being confined to the outside of rugged clods.

Many fields can be vastly benefitted by merely plowing them in the fall of the year, and leaving the soil thus exposed for a single winter. But some care must be taken not to give too severe treatment of this sort, as in the case of lands so situated they will wash if not protected by a sod. And if a single winter of this treatment is beneficial, how much more so will be a thorough course, covering two, three or even five years?

Some may think they cannot thus afford to have a portion of their land out of cultivation, but often it would be greatly to their interest to do so, wholly aside from the benefit to the land that is "resting." Most of us could confine our cultivation to fewer acres for a time, with good results. We should have more manure to apply to the area that we work, could put more labor and closer care upon it, and without doubt make it produce crops of more value than it has done, by thus concentrating our effort. And then, after a time we should have some rejuvenated and practically virgin fields to turn toward, while those which we have been working receive like treatment.—Farm and Fireside.

What One Potato Did.

T. B. Terry, of Ohio, made an interesting experiment with a potato this year. This potato he cut into seventy-four pieces, each piece having one-sixth of an eye. The pieces were planted in seventy-four hills thirty-three inches apart, each way. The land was clover sod, the planting being done late, after a crop of clover had been cut, and the crop suffered from lack of moisture, but by the time the potatoes had matured the vines covered the ground, and from an exact square rod the yield was over five pecks of large tubers, at the rate of 200 bushels per acre. Mr. Terry does not recommend the use of one-sixth of an eye in planting, but he thinks that one eye to a hill is sufficient; his experiment ought to prove this. He says only potatoes of strong vitality would be capable of making such a yield as his potato made.

—Oak Lake Farmers' Institute proposes to have a plowing match next summer, and, if so, will have the assistance of the agricultural society. This is a move that cannot be too soon followed by every similar society in the country.

A Plea for an Agricultural College

By J. R. M., in the Manitoba College Journal for December.

If one were to put the question, "What are you going to be?" or "What do you intend to make your life-work?" to every student in attendance at our College, he would in all likelihood get one of three answers—a minister, a doctor, or a lawyer. The writer has in his own experience never received the answer that he intended to make farming his profession.

You may have often heard the parents of a family of sons speak thus: "We have sent John and George to college, as they were promising lads, and we have decided to give them professions; but Harry, poor fellow, is such a dull boy that we have thought it the wisest course to send him to the country to learn farming."

These two facts lead us to ask the following questions. In the first place, will the boy who is good at nothing else make a good farmer? or, is the most successful farmer not necessarily a man of brains? Secondly, Would the farmer, supposing him to be possessed of average ability, profit by a higher education, and could he turn it to account in his life-work?

Let us consider for a moment the position which the farming class occupies, and is to occupy, in this western land. We do not live near any great sea, consequently fishing and other maritime occupations can exist among us only to a small extent on the larger lakes. Ours is not a thickly wooded country, so that lumbering will be limited; nor do many mines exist near at hand; and those, that do, give promise of occupation to no large number of people. We have few factories, and we import almost everything except staples of food, such as meat, flour, butter, cheese and eggs. What we do possess, however, is a vast expanse of fertile soil, broad prairies covered with pasture for thousands of cattle; well watered plains, which offer inducements as great as any in the world for the raising of cereals and stock. Furthermore, from the nature and extent of our land, it must be evident to any intelligent man or woman that the greater portion of the population of this country must ever consist of the farming class, and that upon that class, far more than upon any other, its future depends.

Such being the case, let us proceed to the discussion of our first question, Will the man who is good for nothing else make a good farmer? Possibly, but not probably. To carry on the occupation of a farmer with the highest measure of success requires, undoubtedly, a man endowed with common sense, a man of business, a far-seeing man, who can calculate all his forces, who can make allowances for emergencies, and who can look so well to the future that whatever chance befall him he will have the balance on the right side at the end of his financial year. If a farmer has not these qualifications, he need never expect success; and we will all agree that the possession of them pre-supposes brains quite above those of the average man; moreover, that these abilities would make their possessor a success in any department of business. Hence we would conclude that the man who is a success at nothing else will not succeed at farming.

Of course, there are occasionally cases where unforeseen misfortune overtakes a man, but in many such cases, where investigation has been made, failure has been found to be due to mismanagement and lack of careful foresight. There are many cases where

"Man is man and master of his fate."

Now, the next point will naturally be this: If brains are necessary for the successful farmer, ought not those who intend to make farming their profession to have a chance to develop their brains along lines which will be specially useful to them in their life-work?

Let us consider what departments of knowledge would be of use in this regard. For entrance to a course of agricultural study an examination in every way equal to those in the departments of Arts, of Law, and of Medicine should be passed, because a man who has studied and made a specialty of farming, who has adopted it as a profession, ought to be regarded as the social and intellectual equal of those engaged in the pursuit of the other professions. The requirements for this entrance should consist of searching tests in the elements of English Grammar, Literature and History, particular attention being paid to the Constitutional History of our own country, so that every man may understand thoroughly how his country is governed, and what his relation as an individual is to, it and to society at large. (Properly speaking, there should be a text-book in Political Science and Economy introduced into our Public and High Schools for this purpose.) A thorough training in Commercial Arithmetic and Book-Keeping should be obtained, so that he might have an intimate acquaintance with all the ins and outs of business. An entrance examination of this character can read, write and speak correctly his own language; who has an extensive knowledge of its grammar, literature and history; who understands political science and does not vote for one side in politics all his life long, merely because his father and grandfather did so, totally disregarding the fact that what might have been the very best policy for the country in their time may be the worst possible one now; who will be able to conduct business transactions of moderate difficulty without a lawyer's assistance, and who can keep in order his own set of books. This gives us promising material out of which to make a farmer.

All of these subjects need not be required for entrance, but it would be even better if they were pursued along with the more practical side of the course. The student should now begin to farm. Beginning with such low and elementary steps as digging, plowing, sowing and planting, he may work his way up to the making of culverts and drains; the shoeing of horses; the building of barns; the studying and drawing of the most modern and improved fittings and furnishings of outbuildings and dairies; passing on to a thorough consideration of the various kinds of machinery used on a farm, and the ways in which they may be improved. A certain knowledge of veterinary science will be useful, and a final year could be advantageously devoted to the study of the chemistry of soils and foods for cattle, of the varieties of cereals and fruits, of the best fertilizing agents, of the processes of selection in stock-raising and so on—the course of study advancing year by year from the purely manual to the purely scientific side of farming.

Now, the course which we have outlined should occupy at least four years, and it could be so arranged that, were a man able to take only one year, the experience gained in that time would be well worth the while. Those who had taken a full course would be well-fitted to take positions as overseers and managers of large farms; of course, these farms in many cases would be their own.

This question naturally arises next. In view of the great importance of the farming class to our western land, what is our government doing for the establishment of an Agricultural College or a similar Institution? Is there a department in our University where a man can gain the degree of Bachelor of Agriculture beside the one who gains that of Bachelor of Arts? As far as we can see, absolutely no move in this direction has been as yet taken, nor indeed does it seem likely to be taken. Our governments have plenty of other ways of spending the people's money, but it is doubtful, very doubtful, whether they could find any ex-



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penditure more for the future good of the community, or for the formation of a class of people who would make out of this western part of Canada a land filled with intelligent men and women devoted commercially, politically, socially and morally to the best interests of their country.

The objection will be raised that all this will be too expensive and that farmers will not be able to afford to send their sons, and their daughters, for that matter, to take advantage of these opportunities. The only answer to this would be, that, if such an institution were organized, it would, in the end, well repay the government to have such education free; further, that it would be possible to have the first and second years of such a course established in connection with every Collegiate Department, and this should place it within the reach of all. The government would surely find the people of our province much more eager to support such an institution than many other schemes which present far less hopes for so great a return.

Farmers' Clubs.

It is interesting to see how farmers elsewhere set about reforming the conditions under which they live. The convention of Farmers' Clubs of Michigan starts out with this preamble:—

We, the delegates from various Farmers' Clubs of Michigan in convention assembled, realizing the importance and efficacy of organization in the promotion of ideas and the advancement of measures of general interest and benefit to the agriculturists of this State, believing that the social, moral, intellectual and financial condition of the farmer is advanced by local organization of farmers' clubs; and that the organization of other clubs will help to promote the same ends, resolve, etc.

It is evident that they are bent on asserting their political influence in controlling the work of the legislature so far as that affects the interests of the farmers, and their resolves are all along that line.

1. That all county officials be paid in full for their respective services by stated salaries fixed by the respective Boards of Supervisors; and that it be made a criminal offence for such officials to receive any fees, or other perquisites in addition to their salaries. Further, that the fees collected in county offices be re-adjusted on an equitable basis, and that hereafter all such fees be turned into the county treasury and become a part of the general fund.

2. That no new State institutions be established by the next Legislature, and that there be a general weeding out of the unprofitable State institutions already in existence, and of unbusiness-like methods of management wherever they exist.

3. That prisons should, in the aggregate, be made self-supporting.

4. That no more than the regular one-sixth mill tax be granted to the University for the coming two years.

5. That no change be made in our road laws whereby the maintenance of our roads shall be made more burdensome than at present, or that will dispossess the farming community of their management.

6. That a more economical and effective system for the collection of taxes upon non-resident land must be devised.

7. That our tax system be so amended as to secure a more equitable distribution of the burdens of taxation upon both personal property and real estate, and upon both corporate and private capital.

8. That we re-affirm the resolutions passed at our last annual meeting relative to the compilation of the laws of the State, which resolutions were as follows:—

Resolved, That we commend the action of the last Legislature in ordering a recompilation of the general laws of the State, together with citations and notes of the decisions of the Supreme Court thereon, as a wise step taken in the interests of the ten thousand public officers who are expected to enforce and observe the laws in their official capacity, but who do not have the time and legal training necessary to enable them to search through and compare the contents of many volumes of laws and decisions.

Resolved, That we also commend the action of the Legislature in returning to the wise policy of the State in preparing, publishing and owning its own compilation of the general laws, in accordance with the express terms of the Constitution, as well calculated to ensure correctness in publication, and saving of expense to the people.

Resolved, That we recommend that the next Legislature, after the close of its own work, order the new compilation published as speedily as possible and consistent with correctness of execution, and provide for offering for sale, at the very lowest price possible, a sufficient number of copies to supply every citizen who desires them, with the laws which he is expected to obey and the ignorance of which is no excuse for their violation.

A resolution advocating the reduction of juries from twelve to six members was also adopted.

Farmers Who Succeed.

"In almost any neighborhood," says the San Francisco Chronicle, "one can pick out the farmers who are going to leave property when they die. They are of two classes—those who began with something and knew how to increase and keep it, and those who began without a cent. These latter—we know two such—no matter on how low wages they began, saved part of them. They worked hard, paid close attention to their business and made no question of hours. If a thing needed finishing they did it, even if it was 6 o'clock, and without being asked. When part of the force was cut off, they were kept, and in the spring their wages were raised to keep them. Of evenings they might have enjoyed playing pedro, drinking beer and groaning over the hard times with the rest; but they could see nothing in it, so staid at home and studied. In the morning they had all the money they had the night before and clear heads. In time they saved about \$1,000 and bought land—not the best, but what they could pay for. They had so learned their business that they knew how to make a profit out of land that the pedro-players could do nothing with. They rustled for customers in the local market and did not complain of competition. They had learned partly by experience, partly from books and papers, while the other fellows were playing pedro. Pretty soon these men will buy each a farm with a fine house at some mortgage sale, and the best of the pedro players may get a job to work for them."

Nature is firmly established in her ways, and no amount of importuning will change them. Man is supposed to be endowed with flexibility that will enable him to adapt himself and his methods to the moods of Nature. The man who sits down and whines over a wet spell or gives way to despair over a drought is liable to end his days living off his relatives or the country. It's the man who tiles his wet land and who irrigates his dry land, who succeeds. God gives the land and sends His sun and showers, but man's two hands must do the rest—man's two hands and the brain that is behind them. The more brain the greater the success.

Agricultural Education in England.

The Royal Commission appointed to inquire into the condition of agriculture, in its recently issued report, comes out strongly in favor of more specific attempts in the direction of teaching agriculture in common schools. It emphasizes the importance of the pupils in the rural schools being well grounded in the first principles of agriculture. "We believe," it is said, "that it is essential for the welfare of agriculture that there should be placed within the reach of every young farmer a sound, general school education, including such grounding in the elements of sciences bearing upon agriculture—e. g., chemistry, geology, botany, and animal physiology—as will give him an intelligent interest in them and familiarize him with their language." The great body of farmers, it is admitted, cannot be expected to attend an agricultural college or special institution for technical education; but, if they are well grounded when at school, they will be able to understand and profit by any information which may otherwise come within their reach afterwards.

During the last season W. J. Robinson, Portage la Prairie, has from his bees made about 2,000 lbs. of honey of fine quality, which has sold at a good figure.

Last year considerable trouble was caused at more than one place by the blundering, careless way in which some western surveying was found to have been done. Glen Adelaide furnished a bad sample of this style of work. We learn that this last summer the government put a new surveyor over the ground, and the settlers having bound themselves to abide by his decision, peace and order have been restored. We trust this is the last case. Blunders may occur anywhere, especially when the operator is more anxious about the quantity than the quality of his work, but the work of a survey, if found erroneous, leads to endless dissatisfaction. Even government surveyors are not above the need of skilled inspection to see that what they do is honest and reliable.

The absurdity of selling so many things by the bushel, as is done still in nearly every civilized country, is not perhaps realized by us as we ought, simply because we have got used to it. The Legislature of Kansas last winter decided to fix a legal standard of weights, by which many of the commodities in common use should be sold. They began with coal and unslacked lime at 80 pounds to the bushel, running down through about 30 different articles, of which we give further samples:—

Articles.	Lbs.
Wheat	60
Rye	56
Corn, shelled	56
Corn, in cob	70
Barley	48
Oats	32
Bran	20
Corn meal	50
Beans	60
Potatoes	60
Flax seed	56
Onions	57
Salt	50
Blue grass, native	14
Blue grass, English	22
Timothy seed	45
Dried apples	24
Green apples	48
Dried peaches	33
Plastering hair, unwashed	8
Plastering hair, washed	4

Good Roads.

Good roads has been a favorite topic in eastern papers of late, and city farmers here occasionally spread themselves a little on the same subject. Good roads are of great advantage, but there are two qualifying conditions. They may cost much more than we can afford to pay for them, and too often they are ill-planned, sometimes made where the work does more harm than good. And sometimes the work spent on them would be better left undone. Take as a familiar example of this a ridge two feet high in the centre, sometimes still higher, that was less than half-finished ten years ago, when the sudden fit of improvement died off. Ever since it has borne luxuriant crops of pig weed, enough to poison a whole section on each side. In fact, the seeds that grow so profusely on that ugly ridge may be, and too often are, carried by the winds of winter several miles on the snow to do all the harm they can, for once made up, it is nobody's business to look after that grade any more. It was only graded that way at first because some narrow-minded envious creature grudged to see needful work done some place else, without getting a share for his own half-section. One-tenth the time spent on that abortive and mischievous grade would have cleared out a shallow groove to drain off the water and fill up chance hollows. Now, all the travel is done on the untouched prairie alongside the grade. Its slight unevennesses are not half so bad as that grade will always be. The municipalities should be compelled to level down those ugly weed banks and sow them in grass, after which they would be not only harmless, but really useful.

Contrast this kind of thing with the work of a good modern grader in the hands of a skilled pathmaster of tried public spirit and skill. One-third of the width is marked off right in the centre for the future grade, and four or five feet at each edge of this is broken with the plow, the sods thrown in the centre, and there left perhaps for a year. Then the grader comes along and shoves the broken land a few inches more, to the discretion of the boss, the dirt being used to smooth off the centre, so that a team can, and should, travel on it at once. Often one wheel runs on the shaven hard surface, the other on the made surface, and the next year a few finishing touches leaves a model roadway.

Roads are like every other thing in this world, you cannot make them all of one pattern if you want the best results. On the swampy lands that surround Winnipeg the kind of road that suits most of the Carberry plain would prove a sad failure. That swampy land must be better drained, if any pattern of road is to be a success. No skill will make a reliable road if there is to be a canal half full of water along each side of it half the summer. Soft mud will never dry hard enough, and a thick layer of willows should be laid on, topped by a few inches of soil, or, if possible, gravel. A road that can be cut into deep grooves by a load is doomed to failure from the start.

These remarks apply only to the common road allowances and the grades upon them as made by local pathmasters. A good pathmaster that will take honest value out of the day's work given by his neighbors, is a public benefactor. If he has no head to plan, no faculty of mastery, he will fool away time and money as long as he stays in that position. The old system of statute labor is the cheapest we can ever have, if in good hands, and a very bad one if otherwise. If good and cheap country roads are wanted, get good

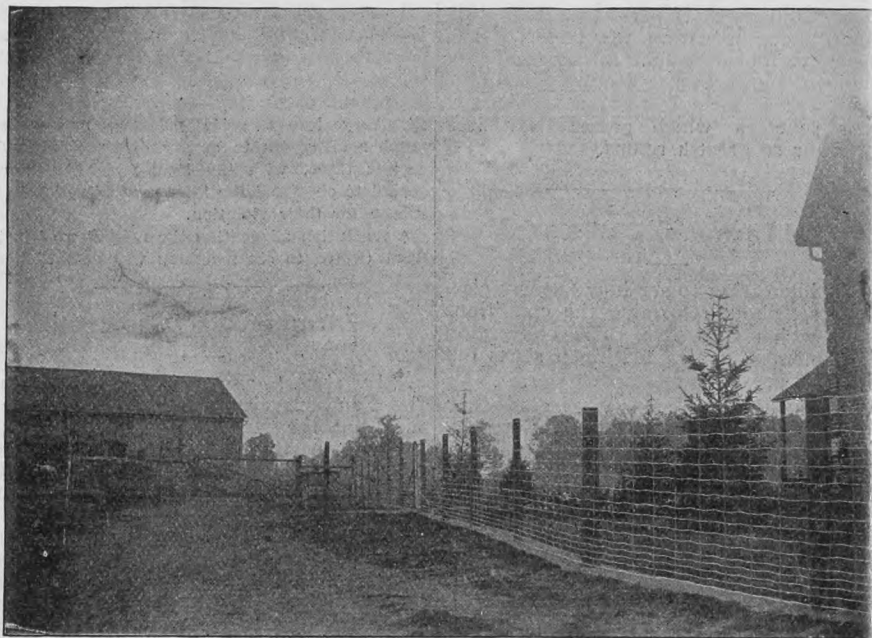
men at whatever cost, give away the old scrapers, buy a modern grader, and do the man and the machine justice.

A piece of camphor gum is a very good indicator of what the weather is to be. If, when the camphor is exposed to the air, the gum remains dry, the weather will be fresh and dry; but if the gum absorbs the moisture and seems damp, it is an indication of rain.

The total amount of money won in prizes at the Glenwood agricultural exhibition this year was \$705; amount of special prizes in value, \$65; grand total of prize money won, \$770. Out side of the

three larger towns on the main line, this is probably the largest amount distributed in prizes by any agricultural society in the province.

A cargo of wheat direct from Siberia has just been delivered at London, Eng. It was brought on barges down the great river Ob to the North sea along with other inland produce, to be there traded for "brick tea," brought round all the way by the Suez canal. The wheat is clean and of nice quality. The usual mode of transport of this compressed tea is overland on camel's back and a primitive vehicle called a tarass. This has proved a successful venture, and is pretty certain to be repeated.



We make several different styles of Page fence, suitable for yards, gardens, etc. where something extra high or close is needed. Also cheaper fences for farms and ranches. Prices and illustrated advertising matter furnished on application to the Page Fence Co., Ltd., or to their Northwest agents—The Rathbun Co., Winnipeg.

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HARPER'S ROUND TABLE

SOME OF THE STRIKING FEATURES FOR 1898

THREE SERIAL STORIES

THE ADVENTURERS
By H. E. MARRIOTT WATSON

is a thrilling story of a fight for a treasure concealed in an old castle in the mountains of Wales.

FOUR FOR A FORTUNE
By ALBERT LEE

is a stirring narrative of four companions who have located a long lost fortune.

THE COPPER PRINCESS
By KIRK MUNROE

It is in the bowels of the earth where the hero has his adventures, and from where he rescues the Princess.

SHORT FICTION

In addition to the three long serial stories, the publication of which will continue during the entire year, there will be short stories of every kind, of which it is only possible to mention a few titles here.

Hunt the Owl
By STANLEY J. WEYMAN

The Flunking of Watkins' Ghost
By JOHN KENDRICK BANGS

The Blockaders
By JAMES BARNES

A Great Haul
By SOPHIE SWETT

A Harbor Mystery
By JOHN R. SPEARS

A Creature of Circumstance
By MORGAN ROBERTSON

ARTICLES ON SPORT, TRAVEL, ETC.

Elephant Hunting in Africa
By SYDNEY BROOKS

First Lessons in Tiller and Sheet
By DUDLEY D. F. PARKER

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Adulterated Food.

In last month's Farmer we called attention to the claim made by the Secretary of Agriculture of the United States for the superiority of American butter over that of every other country, Denmark only excepted. Even granting the correctness of his assertion regarding the purity of the small quantity of specially prepared butter sent last summer by him to the British market, what he did send is only a mole hill to the mountains of grossly adulterated American dairy products that have been put on the market both at home and abroad for more years than we can correctly remember. But everybody knows, none better perhaps than Secretary Wilson himself, that there is hardly anything that can be used as food or medicine, or worn or used in the States, that is not more or less adulterated.

money is fraudulently taken from the consumer. An average wage earner, earning \$1.50 a day, who expends half of his wages for food, loses \$25 every year through adulterated food products. As a business proposition the inspection of foods would be a paying investment."

Minnesota flour is probably very little adulterated, but whole wheat flour is.

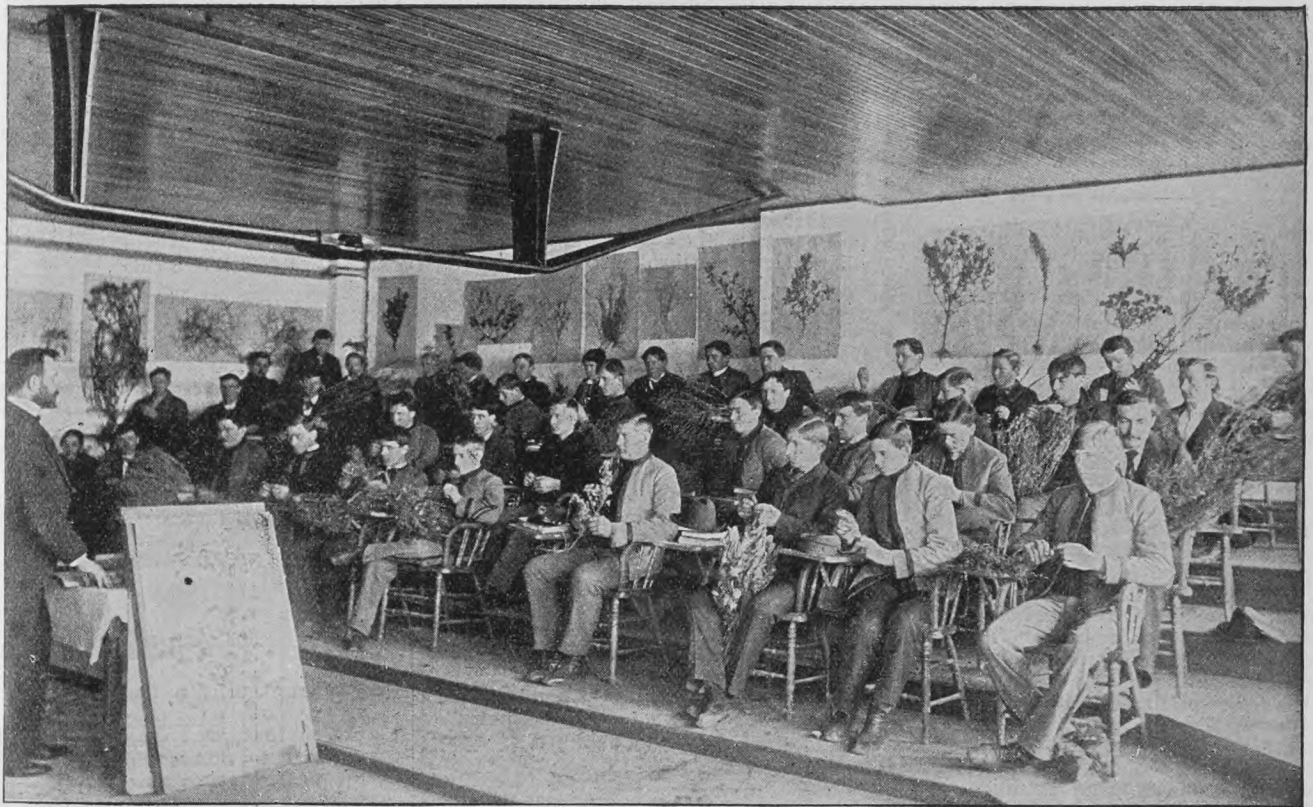
"Low grades of flour are mixed with waste milling products and sold as genuine whole wheat flour. The analysis of a large number of samples of bread purchased on the markets of Minneapolis and St. Paul shows that whole wheat bread is an extremely variable article of food. Excessive prices are charged for so-called breakfast foods made entirely of corn. A small box, 2 pounds weight and costing 10 cents, contains one cent's worth of corn."

Of course, Professor Snyder told his hearers about the frauds in butter and

of inspection the adulterated products were reduced to 15 per cent. If nothing is done to check the adulteration of foods, drugs and clothing, the condition of affairs will not improve."

Sydney Smith, in a review of the taxation of his age, showed that a man could at that time find no escape from taxation till he was carried in a taxed coffin to an untaxed grave. So Prof. Snyder.

"The following picture is not far from true. A workman has for his breakfast meat, milk butter, bread, cheese, syrup, breakfast food and coffee. The meat has been preserved with salicylic acid, borax or some other equally injurious preservative. The milk has been either skimmed or watered a little and is swarming with tuberculosis bacilli. The butter, sold as butter, is oleomargarine. The cheese is filled cheese. The syrup is glucose syrup. The breakfast food, sold in a gilt-edged package with an attractive name is of



(FIG. 1.) CLASS IN AGRICULTURE.

Conducted by Professor W. M. Hays, of the Minnesota Farm School, located at St. Anthony Park, Minn.

ated, some of it to dangerous degrees. Of course, they are not the only sinners, but they are adepts, and audacious in their frauds to a supreme degree, and proof is always handy. Secretary Wilson is doing his best to modify, as far as his power extends, the gross frauds perpetrated by rascally manufacturers, and, just to show how big a contract he has on hand, we may quote from a paper read by Professor Harry Snyder, one of the bright young teachers the State of Minnesota has secured for her agricultural schools. At a meeting of the Social Science club, of Minneapolis, he read a paper a few weeks ago, from which we learn, on the authority of statistics supplied by the Department itself, that 15 per cent. of all their food production was adulterated. "In the aggregate," says Prof. Snyder, "the money expended for adulterated foods reaches an enormous figure. The adulteration of our foods to the extent of even one per cent. amounts to the enormous sum of \$340,000,000 annually. This

cheese, referred to by us in last issue.

"A large list of adulterated foods might be given which would include lard, coffee, tea, syrups, honey, spices of all kinds, meats preserved with salicylic acid and injurious food preservatives, canned fruit, in fact, there is hardly a food article that cannot be adulterated in some way. Without being sensational in the matter, there is an alarming amount of food adulteration being practised, and there is no indication that it is decreasing. Reports from the State Board of Health show that the per cent of quinine in citrate of iron and quinine ranges in strength from one to twelve per cent. It makes a great difference whether a prescription is filled with a two or ten per cent. material. A great many chemical and pharmaceutical manufacturers make honest goods and there are a great many who do not. When the New York State Board of Health began the examination of alkaloid drugs it was found that they were adulterated to the extent of 60 per cent. After three years

poor quality and deficient in food value. The bread, purchased as whole wheat bread, is low grade flour mixed with bran. The coffee has been extracted and the essential oil removed, and a little chickory and a few beans added to make full weight. He carries to his work a dinner in a tin pail adulterated in about the same way as his breakfast. The tin pail is an iron skeleton, with a thin coating of tin, which may possibly contain a high per cent. of arsenic."

And so on, through all, he wears and uses. Professor Snyder's information was not perhaps meant for foreign consumption, but the goods he denounces are, and we get a share of them. For eternal smartness in production of bogus merchandise of all sorts, Uncle Sam has no rival, and for skill in disposing of them to advantage, we may live a long time before we see his equal.

Thus far we have followed Professor Snyder, and now turn to the Northwestern Miller, which ought to know a great deal

more about flour than even he does. The Miller is conspicuous for its hard hitting at every form of fraud, especially in so-called wheat products. Minneapolis has always held a high character for its wheat products, but outside of that the art and mystery of blending wheat flour with corn starch is making rapid progress to perfection, and this is the Miller's style of dressing these manipulators:—

"The 'miller' who has been making money out of the bastard product of corn and wheat, and who has driven honest competitors out of the field, may in turn—and we sincerely hope he will—get a taste of his own medicine; for, the powdered corn starch mixer will surely have him on the hip. We hope the taste of the medicine will be bitter in his mouth, that it will burn its way through his hardened conscience, and finally eat out its course to his pocket-book, which is the only sensitive spot in him. If this product can be used profitably and without detection, there are a thousand mixers and blenders and counterfeiters ready to buy it and foist it on the market, and the manufacturers will find them out and sell them just as freely for cash as they sold the poor fool of a miller who thought he had discovered a way of making money by a new and very easy method."

Down in Chili grain is still trodden out by the old scriptural method, only it is the horse and not the ox that does the work. The threshing floor is surrounded by a strong fence. The half wild mares are driven inside, and kept going at the gallop by wild yells and long whips. Threshing machines are beginning to displace the ancient method.

Belgium is a small over-crowded country where small farming is the rule and school education confined to children of very immature age. After that both sexes must go out to the fields to help in earning the family living. As a remedy for the limited opportunities given to families, the government has established ten agricultural housekeeping schools exclusively for farmers' daughters, and attended by 505 pupils. These establishments will soon be provided with annexes for imparting the fullest instruction in modern dairying, and the latter will be worked on the co-operative system. The Minister of Agriculture, too, has received so many applications to establish co-operative dairies, that he has had to organize a special service to deal with the matter. An important society, moreover, has been recently formed to dispute the London and Provincial markets with France and Denmark for agricultural products. It is backed by the Belgian steamboat and railway companies. All of these recognizing the principle that trained skill is the only thing that can enable any country to hold its own in the race of competition. Our Canadian systems of education are mainly influential in drawing every child with a good measure of capacity away from farming and encouraging the idea that farm work is degrading to any superior person.

The ranchmen of the Yorkton district are getting alarmed at the prospective influx of settlers from the States, who will divide up into quarter sections the land they have been in the habit of using for hay. This feeling is quite natural, but though they began the work of settlement, they have acquired no legal rights, and in their case, as with many others, their claims must be abridged in deference to the principle of all enlightened government, "the greatest good of the greatest number." If the new settlers are of a sort to build up the country by progressive industry, the ranchers will be

forced to fall back to where there is more room for their operations. If the new men are of the sort who farm in prairie schooners and spoil good hay land to grow grain that will never ripen, the ranchers will in due time be avenged on the bad judgment and unfitness of their supplanters. There is land now lying idle within 25 miles of Winnipeg, and open to all comers, that less than 20 years ago was covered with sanguine pioneers, who tried to grow wheat on a cold bottom fit only for pasturage. The experience of the Osborne district may be repeated at more points than one further west, and bad judgment will bring sure failure sooner or later. Where land suits mixed farming, and good men settle on it, the rancher must pull up stakes and retreat further into the wilderness.

The road allowance is one of the institutions whose value we do not find out all in one day. In England the old-fashioned roads were wide and irregular, just as some of our own road allowances are now, and in many cases there were wide drove roads, along which stock could be driven in a leisurely way without being disturbed by ordinary traffic. As time wore on, and the land became valuable, the owners alongside fenced in all that the indifference of the public allowed, and some of the drove roads were shut up altogether by the great landowners, through whose estates they passed. Sometimes a village Hampden broke down the barriers and defied the usurper, but oftener he had his will. Now there are county councils, whose province it is to look after all such matters, and that of Bedfordshire has got a government order that all recent encroachments in one parish shall be abated before January 19 next by the owners removing, at their own expense, all buildings, fences, trees, or other obstructions, so as to enable the highways to be restored to their original width. If any of the owners fail to comply with the order before the date mentioned, the county surveyor is empowered to employ such means and to do such things as he shall deem expedient for the purpose of carrying the order into effect; and all his expenses are to be a debt recoverable from the owner by the county council. Our own land laws give ample protection to what in the future will be more valued than now—the public road allowances.

A one-eyed calf has been placed in Paisley Museum by Mr. Pottie, a well-known V. S. of that town. The eye is planted in the middle of the animal's forehead.

James Arnett, Roden, has purchased from J. M. Roddick, Brandon Hills, his 10-months' old bull Tam O'Shanter, a descendant of some of the best English stock.

Lord Rothschild sold by auction recently 30 mares and fillies of the Shire breed, which made the average of \$1,118. Mares went for from \$3535 downwards and fillies from \$1,768. Most of them went to wealthy fanciers.

The record of the year for fat cattle has been made by a Welsh steer, which gave nearly 74 per cent. of dead to live weight. A Devon made 72½, and a Shorthorn heifer 71½ per cent. These were among the Smithfield champions.

The great annual stallion show will be held at Glasgow on Feb. 4th, when two prizes, value \$400, will be offered, one for horses foaled before 1895, the other for younger animals. The Cawdor cup, value \$260, is also offered for best horse of any age.

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DR. BARNARDO'S HOMES.

The managers of these institutions invite applications from farmers and others for boys and youths who are being sent out periodically, after careful training in English homes. The older boys remain for a period of one year at the Farm Home at Russell, during which time they receive practical instruction in general farm work before being placed in situations. Boys from eleven to thirteen are placed from the recently established distributing home in Winnipeg. Applications for younger boys should be addressed to the Resident Superintendent—115 Pacific Avenue, Winnipeg,—and for older boys, possessing experience in farm work, to Mr. E. A. Struthers, manager Dr. Barnardo's Farm Home, Russell, Man.

[1927]

When writing advertisers, mention The Farmer

A Great Canadian Industry.

A Description of one of our Greatest Manufacturing Establishments and an Explanation of Some of the Methods of Making Paper, Woodenware and Matches.



THE organization of an army of soldiers under a general and his staff is an interesting subject for study, especially when that army is in battle. So the organization of a great body of industrial workers under one managing head forms also an interesting subject for investigation. Our forefathers of the eighteenth century knew nothing of industrial armies and factories, and huge manufacturing establishments. The steam engine and steam-driven machinery had just seen the light of day when that century closed, and its people never dreamed of the changes which the steam engine would work. Within a hundred years a factory system has been perfected which has revolutionized the production of articles on which labor is bestowed. "Division of labor" has been introduced and has worked wonders, multiplying the number of articles which may be used by man for his sustenance, his comfort, his pleasure and his advancement.

In the City of Hull, Que., just across the river from the capital of Canada, is one of the largest manufacturing establishments in the country; indeed, it has been said, by a leading English prelate and scientist, to be the largest of its kind and the most unique establishment under the British flag. An average of about 1,800 employees are daily ranged in ranks and squads and companies, all working under a central organization—a general of industry and his staff. It is a description of this interesting establishment, a representative Canadian manufactory, which will here be attempted by one who, after a good deal of hard work and some smooth begging, was allowed inside and permitted to snap his Kodak "not more than 10 or 12 times."

The works under the control of The E. B. Eddy Company, Limited, comprise about 40 factories, and cover many acres of ground. The wages paid total over \$1,200 a day, or nearly \$400,000 annually. The average daily output is as follows:—Matches, 35,000,000;

indurated fibre ware, 800 articles; woodenware, 3,000 pails and tubs; washboards, 600; paper, 45 to 50 tons; sulphite fibre and wood pulp, 50 tons; paper bags, 500,000.

HOW PAPER IS MADE.

As many people already know, much paper is now made from wood, and the best wood for the purpose is Canadian spruce. This timber is found in large quantities in the territory along both sides of the Ottawa River, and from these limits the supply of Eddy's material is drawn. Of course spruce is found in many other places in Canada, and it would appear that this country must supply a large portion of the world's requirements so far as pulp and paper are concerned. Such countries as Great Britain, France, Spain, Africa, India, Australia and Japan, must continue to import their paper or the raw material for its manufacture, and as the use of paper becomes more and more general, the demand for fibre and pulp will be of the greatest benefit to Canada.

Such spruce trees as are from six to ten inches in diameter are cut down in the bush and the logs floated down the river Ottawa to the mills. Here they are sawn into two foot lengths, and the bark is removed by



As it Comes from the Wet Machine.

mills.

At the end of each machine are stacks of heavy steel rollers. Over and under and between these rollers the paper passes until it acquires the proper "calender" or smoothness of surface. Ordinary "news," or paper for the use of daily and weekly newspapers, requires little calendering; that used in magazines, books and catalogues requires much more. Sometimes special calenders unattached to machines are used, and a very large and heavy set of these—the largest set in Canada—is illustrated here.

There is another process where the wood is cut by a saw into smaller pieces or disks, or cut into chips, and placed in huge boilers or digesters containing acid and converted into what is known as "sulphite pulp," so called because of the use of sulphurous acid.

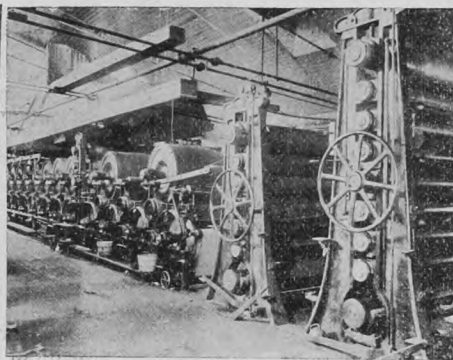
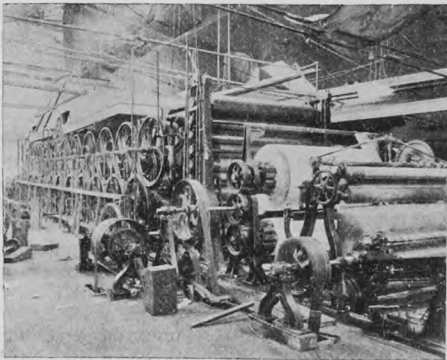
The finish of the paper turned out depends on the amount of calendering which it receives, while the quality depends upon the percentage of wood pulp, sulphite fibre and rags used.

The cheap grades of paper are made chiefly from wood pulp; the middle grades contain more sulphite fibre (or chemical pulp), and the higher grades contain a small percentage of wood pulp and a large percentage of sulphite fibre or rags.

Manilla paper, yellow in color, is manufactured largely into paper bags and flour sacks. In this establishment the bag-making industry is a delightful study. The machines are specially made, and some of them will make, direct from the roll and wholly automatically, 145 complete, pasted bags in a minute; or, 8,700 bags an hour.

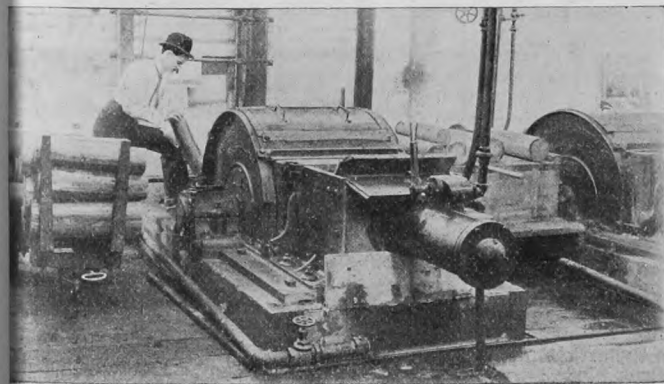
MAKING WOODENWARE.

The manner in which pails and tubs are made in this establishment is just as surprising and interesting as the making of paper. Each workman has a part to perform, and the skill shown is something wonderful. Each man or boy is paid by the piece, and often, while the sun is still high in the sky, has completed the number of pieces required to give him a good day's wages. The manner in which the roughness is taken off the staves of a tub and the hoop then put on is illustrated here by a cut. The



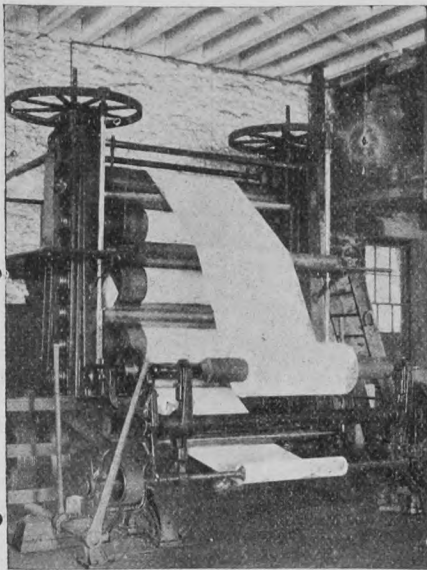
Two Large Paper Machines.

special machinery. These sticks are then ready to be taken to the grinders. The accompanying illustration shows a truck load of wood pulp and a workman in the act of putting a stick into a grinder. This machine grinds the wood up into a product which is called "mechanical wood pulp," the cheapest kind of wood pulp. The pulp is then dropped into an agitator and afterwards run through a wet machine, coming out in rough sheets about an eighth of an inch in thickness. A pile of this is shown in one of the accompanying illustrations. In this shape it is taken to the beating engines and re-dissolved into a milky liquid, finally it is carried to the paper machine proper, run over plates and wires to a proper thickness, and passed over a succession of rolls which squeeze and dry out the water and cause the sheet of paper to be formed. These paper machines are of enormous length and height and of delicate mechanism, as may be seen by the illustrations. They are started on Monday morning and are run day and night without a stop—except in case of an accident—until Saturday night. During each hour each machine will turn out several miles of paper, and there are seven such machines at these



Putting Pulp Sticks into a Grinder.





A Large Set of Calenders.

tub is then put into another lathe and the inside made perfectly smooth with a planer and sand paper. Another man puts in the bottom and puts on another hoop. Farther on in the long factory the tub goes; the outside is treated with several coats of paint and the hoops are striped. The picture of a boy stripping the hoops of a pail will be found especially interesting. Finally the handles are put on and the tub or pail is ready for packing and shipping.

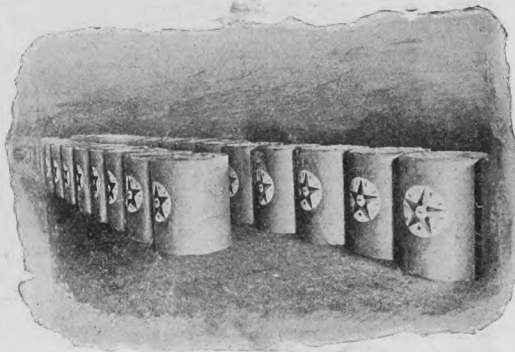
There is no confusion, no waste of energy; each man has a machine to assist him in doing his part of the work, and each boy has his portion of the production assigned to him. Every one is expert in his own particular line, and as all articles are inspected by an overseer before leaving the building, no slipshod work is allowed.

MATCHES.

But the branch of the business which has made the name of Eddy known in every home in Canada is the manufacture of matches. It is marvellous to think of one factory making thirty-five to thirty-six million matches a day, while the perfection of the process by which this is done is a tribute to the mechanical genius of man. Small, square blocks of wood are fed into machines and cut up into sticks the thickness of ordinary wood matches, but twice the length. These are then fed into other machines and rolled on strips of webbing into circular bundles, each match occupying a space of its own. As each stick projects beyond the webbing on both sides, both ends may be dipped in sulphur. After this process, they are dried and then dipped in phosphorus. After again being dried, these circular bundles are unrolled by machines which cut each

stick in two matches. They are then taken to the packing-room where a hundred or more young girls with deft skill put them in the small boxes and then into quarter gross boxes ready for packing into the cases. The dexterity with which these little bright-faced French-Canadian girls will pick up from a pile the exact number of matches, push them into the little paper boxes and put on the lid, is highly amusing and interesting. The girls work very fast, but always have time to look about and say something in their musical "patois" to their neighbors.

The inventive genius of man is seen at almost its best in the four wonderful machines used for making the little paper boxes for the matches. A strip of paper about three inches wide is fed into each machine from a spool. This machine points, cuts, pastes and forms up the little box so that it drops down into the receiver complete. Each of these machines is made up



"News" Paper Ready for Shipment.

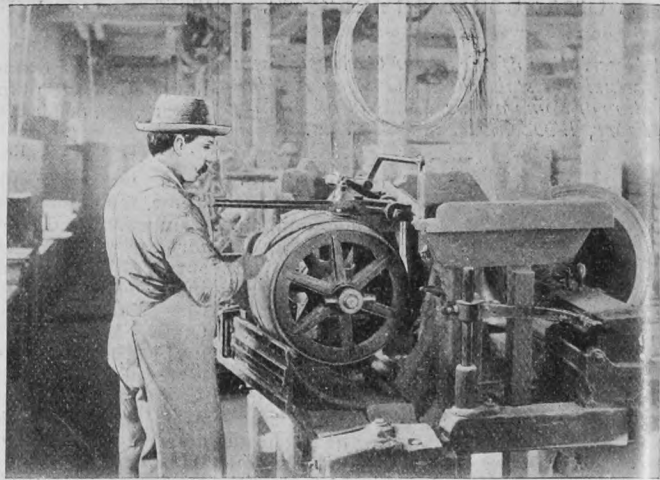
of three thousand seven hundred pieces, and was manufactured on the premises from designs made by Mr. Millen, the mechanical superintendent of the company. They are so valuable that they are kept in a separate, fire-proof room.

If any reader thinks that the invention of the match is a small thing, let him try to do without one for a week. The modern world owes a great deal of its present comfort and convenience to these little sulphur-tipped articles.

INDURATED FIBREWARE.

Indurated fibreware is another line of ar-

ticles made at this establishment. These are made from wood pulp, chemically treated, and baked much as pottery is fired. Some 800 articles, such as tubs, pails and bowls, are made every day. The enduring quality of this ware is wonderful, as people all over Canada can testify. The manufacture is carried on along scientific lines, and the secrets of the process are carefully guarded, hence the lack of illustrations of the process. The greatest difficulty in the production of indurated fibreware is the devising of machinery which will mould and compress a wood pulp vessel, and at the same time allow drainage from both sides of the article during this process.



A Lathe for Smoothing the Outside of a Tub, and for Putting on Hoops.

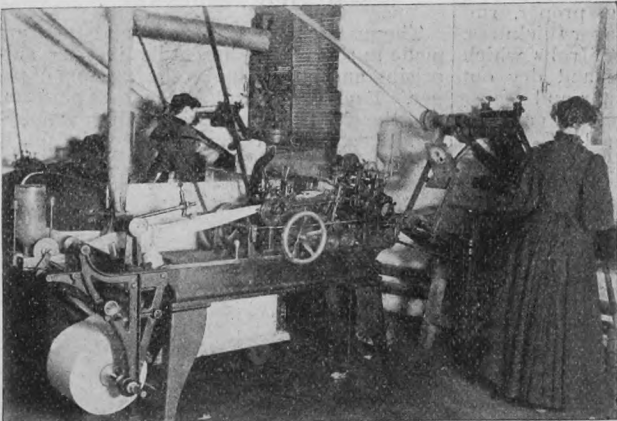
MISCELLANEOUS FEATURES.

There are many other features of this great establishment which would bear special description. There is the electric lighting plant with its six dynamos, and a capacity of 60,000 candle power; the battery of huge boilers with their blazing furnaces in which the refuse of the mill is burned; the system by which this great group of buildings is heated; the water power of the famous Chaudiere Falls, and how it has been harnessed in order that these hundreds of machines may be driven; the system of wire rope transmission, which conveys the power from the water wheels to the different factories; the quantities of raw material used every year, and the sources of supply—all these points are worthy of study. Then there is the fire protection system, which is said to excel in efficiency even that of the City of Ottawa across the river.

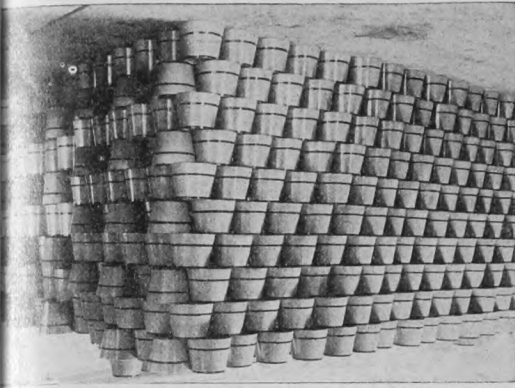
The system by which all the wares manufactured at Hull are distributed through the country is an admirable one. Apart from the vast quantities of goods that are sold direct to all the leading and wholesale dealers throughout Canada, other very large quantities are shipped to the Company's various branches or agencies in Montreal, Toronto, Quebec, Hamilton, Kingston, Winnipeg, Victoria, Vancouver, St. John, N.B., London, Halifax, Charlottetown, St. Johns, Nfld. From warehouses at these points smaller lots are then distributed to customers. The men



Striping the Hoops of a Pail.



A Machine that Makes 8,700 Paper Bags an Hour.



A Pile of Newly-Painted Pails.

who have charge of the branches and agencies are specially selected for their work, are thoroughly conversant with their business, and they must have few other thoughts than those which concern the selling of the Eddy goods.

MR. EDDY.

The most interesting personality in connection with this wonderful industry is, of course, the founder, Mr. Eddy, who entered a business in 1851, and so continued till 1886, when the joint stock company was formed. He started originally in the match business, which has made him so well-known in Canada. Early in life he harnessed the Chaudiere Falls, built his match and saw-mills, bought timber limits, sent his gangs of men with their axes in the woods, built and ran fleets of barges and tugs, and distributed 75,000,000 feet of lumber annually. In 1887 he began to make wood-ware, then added the manufacture of pulp and indurated fibreware; and, finally, during the past six years, built the finest group of paper mills in Canada. Like other men, he has met with misfortunes in his time. Serious fires have at times destroyed the work of years, yet these have but served to nerve Mr. Eddy to fresh endeavor and renewed effort. By ultra-conservative men Mr. Eddy has, perhaps, been thought reckless, so quick are his movements when once he decides upon a new enterprise of any kind. Rapidity of action and quickness of conception always mask the successful statesman, general, or man of affairs, and a great deal of Mr. Eddy's success has been due to the possession of these qualities.

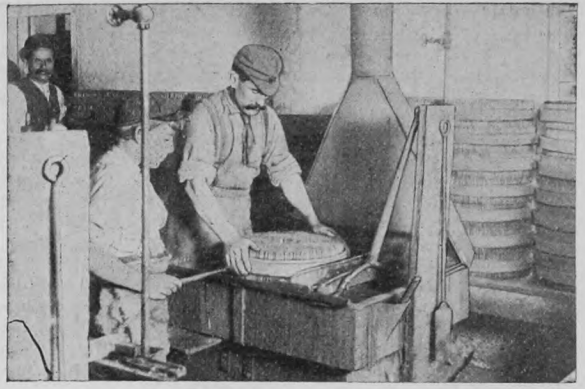
Mr. Eddy is proud of his achievements and of his great industries, but has not the pride to make him despise the toiler and his welfare. He lives in a beautiful home in the City of Hull, has represented his county in Parliament and has been the mayor of his city from time to time. His business, however, is first in his mind, and his time, when not devoted to this or some of the social interests of his army of work-

ers, is spent in travelling. He has seen a great deal of the world, and knows how to sharpen himself against the wits of other people. Although not a Canadian by birth, he is truly Canadian in spirit. Having spent nearly fifty years of his life as a citizen of this country, and having made his wealth here, he feels that to this Dominion he owes much, and honorably endeavors to repay the debt. In any movement which will benefit the nation, either materially or socially, he is always deeply

interested. He has seen the growth of the country as one watches the boy merge into youth and then into manhood; and, his own growth being similar and simultaneous, his attitude as a citizen could not be otherwise than has been stated.

THE LIEUTENANTS.

There are always lots of "Blue Noses" about Ottawa, not only in political but in commercial circles, and Mr. W. H. Rowley, who was born at Yarmouth, N.S., in the early fifties, is one of the latter. After some sixteen or seventeen years' service in the Merchants' Bank of Canada, during six



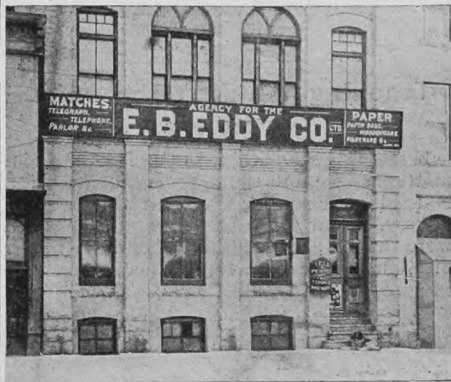
Dipping the Bundles in Phosphorus.

Rowley is a most genial fellow, whether he be met while engaged in the multifarious duties of his position or at "Worfield House," his beautiful home in Ottawa. By the way, Mr. Rowley is descended from a line of ancestors, several of whom were admirals in the British navy.

Mr. G. H. Millen, the General Mechanical Superintendent of the Works, was born at Glen's Falls, N. Y., about fifty-five years ago. Every piece of machinery and every building, except the match factory, has been put up under his personal supervision; and a glance at the bird's eye view of the Company's plant will impress the reader with the extent of his work. Mr. Millen is an inventor of scores of labor-saving devices, and no small part of the machinery in this Company's use is the result of his inventive skill.—James Alexander, in The Canadian Magazine.

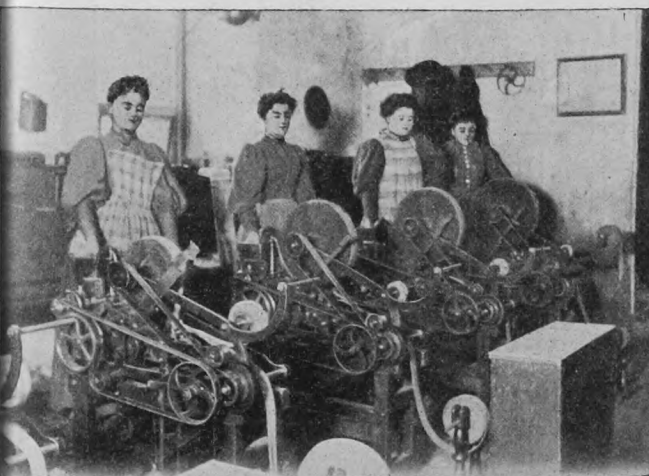
How to Cook a Husband.

Many husbands are utterly spoiled by mismanagement in cooking, and so are not tender and good. Some women go about it as if their husbands were bladders, and blow them up; others keep them constantly in hot water; others let them freeze by their carelessness and indifference. Some keep them in a stew by irritating ways and words; others roast them, and others keep them in a pickle all their lives. It cannot be supposed that any husband will be tender and good, managed this way; but they are really delicious when properly treated. In selecting your husband you should not be guided by the silvery appearance as in buying mackerel, nor by the golden tint as if you wanted salmon. Be sure to select him yourself, as tastes differ. Do not go to the market for him, as the best are always brought to the door. It is far better to have none unless you will patiently learn how to cook him. A preserving kettle of the finest porcelain is best, but if you have nothing better than an earthenware pipkin



Winnipeg Agency.

years of which he was manager at Ottawa, he was selected by Mr. Eddy as Secretary-Treasurer of the E. B. Eddy Co. at its incorporation in 1887. Mr. Rowley's business and banking training has evidently stood him in good stead, for the financial standing, the business capacity, the well defined, settled policy of the Company and the admirable system by which the sales and purchases, collections and payments and general conduct of the office and accounts of the Company are carried on, show his hand in a marked manner. Personally, Mr.



Rolling the Matches into Circular Bundles.



Girls Boxing Matches.



E. B. Eddy, Esq.

it will do with care. See that the linen in which you wrap him is nicely washed and mended, with the required number of buttons and strings nicely sewed on. Tie him in a kettle by a strong silken cord called comfort, as the one called duty is apt to be weak. He is apt to fly out of the kettle and be burned, and crusty on the edges, since, like crabs and lobsters, you have to cook him while alive. Make a clear, steady fire out of love, neatness and cheerfulness;

set him as near this as seems to agree with him. If he sputter and fizz, do not be anxious about him; some husbands do this until they are quite done. Add a little sugar in the form of what confectioners call kisses, but no vinegar or pepper must be used on any account. A little spice improves them, but it must be used with care and judgment. Do not stick any sharp instruments into him to see if he is becoming tender. Stir him gently, watch the while, and you cannot fail to know when he is done. If thus treated you will find him very digestible, agreeing nicely with you and the children, and he will keep as long as you wish, unless you become careless and set him in too cold a place.

Teaching Children the Value of Money.

It seems curious that, in the face of social matters as we find them, no more attention is paid to teaching children the value of money. How much misery would be saved were this little precaution taken! A father dies, and suddenly a family accustomed to

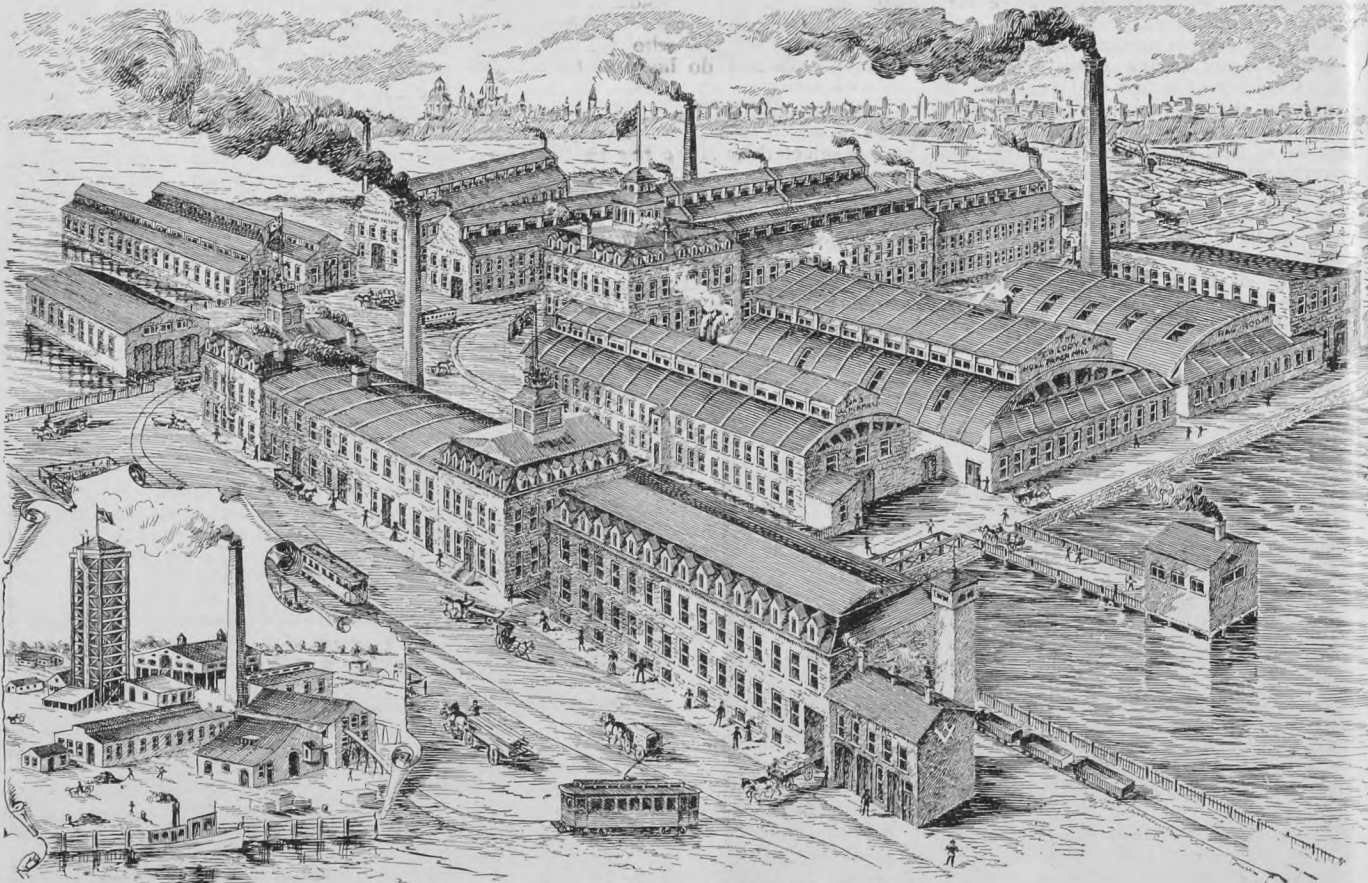
live in an expensive way discovers that there is little or nothing left for them.

If the boys and girls are so fortunate as to procure positions that bring in a living income, how difficult do they find it to live on the amount, simply because they have never been taught the value of a penny. They have had the use of an allowance as children, but no idea of its expenditure has ever been given them.

Children should not be taught to be miserly, but if a sufficient income is allowed them they should be taught to make it sufficient. They should be taught to reflect before spending their money, so that it may not all go for sweets the first week, leaving a long blank of days when the glories of marbles, kites and other toys brighten in proportion to the impossibility to obtain them.



Mr. Eddy's House.



THE SULPHITE MILL.

General View of the Eddy Works, Hull, Canada.

The City of Ottawa is seen in the distance, with Parliament Hill to the left.



Prize Competition for Ladies.

The Nor'-West Farmer will offer monthly, for the present, a handsome Fancy Leather Purse, with name printed thereon in gilt letters, to the competitor who sends us by the 20th of each month the most instructive letter on any topic suitable for our "Household" readers. Competitors must be females, and on the top left-hand corner of the envelopes containing the letters must be written the word "Household." The prize will not be awarded to the same person twice. Address, The Nor'-West Farmer, Box 1310, Winnipeg, Man.

Tired Mothers.

A little elbow rests upon your knee,
Your tired knee that has so much to bear;
A child's dear eyes are looking lovingly
From underneath a thatch of tangled hair;
Perhaps you do not heed the loving touch
Of warm moist fingers holding yours so tight,
You do not prize this blessing over much,
You almost are too tired to pray to-night.

But it is blessedness; a year ago
I did not see it as I do to-day,
We are so dull and thankless, and so slow
To catch the sunshine as it slips away.
And now it seems surpassing strange to me,
That while I wore the badge of motherhood,
I did not kiss more oft and tenderly,
The little child that brought me only good.

And if some night when you sit down to rest,
You miss the elbow from your tired knee,
This restless curling head from off your breast,
This lisping tongue that chatters constantly;
If from your own this dimpled hand had slipped,
And ne'er would nestle in your palm again,
If the white feet into the grave had tripped,
I could not blame you for your heart-ache then.

I wonder so that mothers ever fret
At little children clinging to their gown,
Or that the footsteps, when the days are wet,
Are ever black enough to make them frown.
If I could find a little muddy boot,
Or cap, or jacket, on my chamber floor,
If I could kiss a rosy, restless foot,
And hear its music in my home once more.

If I could mend a broken cart to-day,
To-morrow make a kite to reach the sky,
There is no woman on God's earth could say
She was more blissfully content than I.
But Ah! the dainty pillow next my own,
Is never rumpled by a shining head;
My singing birdling from its nest has flown,
The little boy I used to kiss is dead.

Home and How to Make it Home-like.

"By One Who Knows," Ninga.

Of course, in the first place, it is necessary to have a house of some kind to begin with—not a handsome house, with elegant furnishings, though all these things would be very nice, still all their beauty will not make a home in the true sense of the word. It takes a woman's brain, a woman's tact, and a woman's wonderful love to complete it. It is the little things in a house that make it home-like; those little nothings that cost so little and do not look stiff and smell like an upholsterer's shop. I once heard a gentleman, while admiring a little wall pocket (letter receptacle) made of stiff pasteboard and covered with colored Canton flannel, with an embossed picture pasted on for decoration, remark, "How pretty; everything in my house I bought and paid for." I felt sorry for him for I knew, although he had an elegant house and fine furnishings, it was no home, and he felt it. O, if we only have one room, let us make it homely; hang up our little decorations; loop back the curtains; brush up the hearth; pull up the chintz-covered rocker; put the patch-work cushion in the right place on the home-made lounge, and do not forget to keep the plant of love in the sunshine and well-tended; and right here the husband may give a helping hand. But do you know I have a fancy that wives are more often in the fault. When love begins to grow cold they forget how they used to try to make themselves pleasing and attractive to the lover they now call husband; how, when they saw him coming, they would brush up the hair, put on a fresh collar, and smile, no matter if things were not going just right, and I think wives who try, find it pays to make home as pleasant as possible. Put off telling the trials and troubles, and, after consideration, if some of them prove to be real troubles, he is a selfish man, indeed, who will not sympathize with and do his best to help the wife he loves.

Sabbath-keeping for the Little Ones.

By K.A.N., Strathewen, Man.

Those of us who are mothers and situated on farms in this vast prairie country, often find a difficulty when Sunday comes round, and bad roads make it impossible for us to attend church or Sunday school with the little ones, as to how we shall amuse and at the same time help them to realize that Sunday should be both a Holy day and a happy day—a day of rest for father and mother, and the real home day of all the week.

I have read recently of a mother who overcame this difficulty by making Sunday a day of "permissions" rather than "denials." For example, children are allowed to play quietly with toys, books, etc., which are set apart from their everyday playthings, and the smallest children soon learn to look forward to Sunday. Some small pictures of religious subjects—uncolored—are provided, and either a box of paints or some crayons, with which to color, will prove a real boon, and lessons can be drawn from the pictures, and many an interesting story told which will linger in the memory long years after. The older children who can read will take pleasure in learning verses, two or more, of a given chapter, until it is finished. By this means I have known people to store up a knowledge of the Bible which could

be attained in no other way. It is surprising what a child can learn in one winter by practising method in learning.

Coloring texts is another pretty and interesting Sunday occupation, and how pleased we are when one has executed the work sufficiently well to present to a friend or neighbor. The winters, though apparently long, pass, like the years, all too quickly, and soon the little ones will be no longer children. Then we can look back with pleasure upon those happy Sundays and their innocent amusements.

[We would thank K. A. N., Strathewen, to send us her full name, so that we can have same printed on her purse.—Ed.]

Home Comforts.

By Mrs. Geo. Bligh, Oakville, Man.

Seeing the notice about the prize competition for ladies, I send the following for "Household Hints":—

Home is woman's kingdom, where we ought to try to make everything pleasant and comfortable for all who come in reach of our home circle.

Why do we not see more plants in our farmers' homes in this cold country of ours? The colder and stormier it is, the more we enjoy our flowers. When all outside is cold and bare, our kitchen window is a comfort to us. I will name a few that are hardy. A few geraniums and a foliage plant or two to brighten a box of petunias, which will bloom all winter long, and for blossoms in a hurry, a Chinese lily is a treasure. Put a bulb in a bowl of water with a few stones, and in three weeks they will be a foot high and in blossom. If you think your homes are too cold, and you are afraid of frost, get a small packing case, in which place your plants at night and cover up well with a blanket or two, and they will pull through. If you are doubtful, it would not hurt the good man to get up and put on a fire. Your window full of bloom should repay him for the trouble.

Our women folks should not miss the pleasure of being out this fine weather. There is nothing so invigorating for our minds, as well as our bodies, to be driving in the cool, frosty air. It makes us have a different feeling when we return to our work again. See that you do not miss it, or you will be old before your time.

For those who happen to run out of lamp-wick, and are miles away from town or village, take a strip of flannelette about three times the width of your wick, and fold it, raw edges in, the size you want, and stitch up and down the wick two or three times, and you have a wick as good as one you would buy.

Stove blacking, mixed with soap suds instead of water, makes a brilliant and more lasting polish.

A little whitening rubbed on windows, mirrors and lamp chimneys, and then polished with a clean cloth, works like magic.

A good stain for the floors, that are so hard to keep white where there are many little feet to tramp over. Take a package of Diamond Dyes. Terra cotta dissolved in 2 or 3 quarts of warm water makes a good cherry stain, and a dark brown will make a very dark brown stain. Apply with a whitewash brush.

These warm spring like days, when the little ones want to be out playing, and they very often catch cold. Now, a flannel cloth, dipped in boiling water and sprinkled with turpentine, and applied to throat or chest, gives almost instant relief.

A warm dish for our husbands when they come home from town, or from some long ride, on a stone cold night, is as follows: Take a small sized pudding dish

and slice in a layer of raw potatoes, and then sprinkle with salt, and a teaspoonful of flour, and some small bits of butter. Then commence another layer, and so on until the dish is full; then pour in enough of sweet milk to cover the potatoes; then place in oven and cook slowly for two hours. The beauty of this dish is that it will keep for hours after it is cooked and still be palatable.

Now, a way to make Monday easier for some of our housekeepers. Many of us would like to have our weekly washing done on Monday, and over by dinner time; but they often hate to take the time to prepare dinner. The winter days are short, it takes all the time for washing. Try this plan for Monday's work: Get up about 6 o'clock, and when you have breakfast over put on your water to heat, and while it is heating, tidy your rooms up. Put your dishes into the pantry, and if you have plenty of dishes, you will not need those, and it will not matter if they are not washed. Peel your potatoes and vegetables and have them ready, and as for meat, have some to either boil or roast. It does not require much attention that way. And if on Saturday you made a pie or two extra, or some extra pudding that would keep for a couple of days and steam up, you have your dessert ready, without any trouble, so you can work away almost up to the dinner hour, and very likely be through, and feel like enjoying your dinner, instead of some cold meal you would otherwise sit down to. A pick-up dinner from Sunday's leavings is what makes it Blue Monday for some.

A meat pie and potato pie in one—Take and boil the remnants of a roast until the meat will fall from the bone; either beef or pork will answer. Put meat in the bottom of bake pan, slice in potatoes until the pan is almost full; then pour in some gravy from the boilings of the roast, salted and seasoned; then spread a good rich biscuit dough on sides and over top and bake in a slow oven until potatoes are cooked.

Ginger Cookies—One egg, one cup lard or butter, one and one-half cup molasses, one cup sugar, one teaspoonful of soda, two tablespoonfuls ginger, enough of flour to roll out easily. These should be made three or four days before using.

A Good Fruit Cake—Four eggs, three cups brown sugar, two cups butter, one cup sweet milk, one pound raisins, one pound currants, one half pound peel, two teaspoonfuls mixed spices, no soda or baking powder, four and one-half cups flour. Twice this receipt makes about a 15-pound cake.

Do You Know.

That rusty flat-irons should be rubbed over with beeswax and lard.

That a little soda-water will relieve sick headache caused by indigestion.

That a cup of strong coffee will remove the odor of onions from the breath.

That tough meat is made tender by lying a few minutes in vinegar water.

That to beat the white of eggs quickly add a pinch of salt. Salt cools, and cold eggs froth rapidly.

That you can take out spots from wash goods by rubbing them with the yolk of egg before washing.

That white spots upon varnished furniture will disappear if you hold a hot plate from the stove over them.

The hill has not lifted its face to Heaven yet, that perseverance will not gain the summit of at last.—Nicholas Nickleby.

The Gifts of God.

O faltering hearts that droop and faint,
Nor dare to scan the journey's length,
Be strong: One walks beside thee close—
He giveth strength.

Ps. xxix 11.

O tempted hearts that trembling shrink,
Nor dare the tempter's darts to face,
Be brave: a Conqueror near thee stands—
He giveth grace.

St. James iv. 6.

O darkened hearts that blindly grope
Amid the starless, rayless night,
Look up: One shines above the clouds—
He giveth light.

Eph. v. 14.

O troubled hearts that throb and quail
'Mid rising storms that never cease,
Be still: amid the tempest's roar
He giveth peace.

St. John xiv, 27.

O weary hearts, whose tired eyes
Look backwards o'er life's pathway steep,
Rest now: To His beloved ones
He giveth sleep.

Ps. cxxvii, 2

O happy ones, whose dauntless faith
Hath triumphed o'er the storm and strife,
Rejoice! For thee, God's own best gift—
Eternal life.

Rom. vi, 23.

—L. L. Robinson.

Helpfulness and Happiness.

The will of God respecting us is that we shall live by each other's happiness, and life; not by each other's misery or death. * * * The relations of parent and child are typical of all beautiful human help. A child may have to die for its parents; but the purpose of heaven is that it shall rather live for them—that, not by its sacrifice, but by its strength, its joy, its force of being, it shall be to them renewal of strength; and as the arrow in the hand of a giant. So it is in all other right relations. Men help each other by

their joy, not by their sorrow. They are not intended to slay themselves for each other, but to strengthen themselves for each other. And among the apparently beautiful things which turn, through mistaken use, to utter evil, I am not sure but that the thoughtlessly meek and self-sacrificing spirit of good men must be named as one of the fatalest. They have so often been taught that there is a virtue in mere suffering, as such; and foolishly to hope that good may be brought by heaven out of all on which heaven itself has set the stamp of evil, that we may avoid it,—that they accept pain and defeat as if these were their appointed portion; never understanding that their defeat is not the less to be mourned because it is more fatal to their enemies than to them. The one thing that a good man has to do, and to see done, is justice; he is neither to slay himself nor others causelessly; so far from denying himself, since he is pleased by good, he is to do his utmost to get his pleasure accomplished. And I only wish there were strength, fidelity, and sense enough among the good Englishmen of this day, to render it possible for them to band together in a vowed brotherhood, to enforce, by strength of heart and hand, the doing of human justice among all who come within their sphere. And finally, for your own teaching, observe, although there may be need for much self-sacrifice and self-denial in the correction of faults of character, the moment the character is formed, the self-denial ceases. Nothing is really done, which it costs you pain to do.—Ruskin.

A Mother's Inspiration.

"Had I no little feet to guide
Along life's toilsome way,
My own more frequently might slide,
More often go astray."
"But when I meet my baby's eyes,
At God's own bar I stand,
And angels draw me toward the skies,
While baby holds my hand."

HARPER'S BAZAR



T. W. Higginson



Katharine De Forest



W. D. Howells

a thoroughly up-to-date periodical for women, will enter upon its thirty-first volume in 1898. During the year it will be as heretofore

A MIRROR OF FASHION

Paris and New York Fashions

A Colored Fashion Supplement

Cut Paper Patterns

A Bi-Weekly Pattern Sheet

Each issue will contain carefully prepared drawings of the advance fashions of Paris and New York. Once a month the BAZAR will issue, free, a colored fashion supplement. Cut paper patterns of certain gowns in each number will be made a feature. These will be sold in connection with each issue at a uniform price. The BAZAR will also publish bi-weekly, free, an outline pattern sheet.



William Black



Mary E. Wilkins



Octave Thanet

LONG SERIALS AND SHORT STORIES

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Cranford.

(Continued from Last Issue.)

However, it was settled according to Miss Jessie's wish. Miss Brown was to be told her father had been summoned to take a short journey on railway business. They had managed it in some way—Miss Jenkyns could not exactly say how. Miss Pole was to stop with Miss Jessie. Mrs. Jamieson had sent to inquire. And this was all we heard that night; and a sorrowful night it was. The next day a full account of the fatal accident was in the county paper which Miss Jenkyns took in. Her eyes were very weak, she said, and she asked me to read it. When I came to the "gallant gentleman" was deeply engaged in the perusal of a number of *Pickwick*, which he had just received," Miss Jenkyns shook her head long and solemnly, and then sighed out, "Poor, dear, infatuated man!"

The corpse was to be taken from the station to the parish church, there to be interred. Miss Jessie had set her heart on following it to the grave; and no dissuaves could alter her resolve. Her restraint upon herself made her almost obstinate; she resisted all Miss Pole's entreaties and Miss Jenkyns's advice. At last Miss Jenkyns gave up the point; and after a silence, which I feared portended some deep displeasure against Miss Jessie, Miss Jenkyns said she should accompany the latter to the funeral.

"It is not fit for you to go alone. It would be against both propriety and humanity were I to allow it."

Miss Jessie seemed as if she did not half like this arrangement; but her obstinacy, if she had any, had been exhausted in her determination to go to the interment. She longed, poor thing, I have no doubt, to cry alone over the grave of the dear father to whom she had been all in all, and to give way, for one little half-hour, uninterrupted by sympathy and unobserved by friendship. But it was not to be. That afternoon Miss Jenkyns sent out for a yard of black crape, and employed herself busily in trimming the little black silk bonnet I have spoken about. When it was finished she put it on, and looked at us for approbation—admiration she despised. I was full of sorrow, but, by one of those whimsical thoughts which come unbidden into our heads, in times of deepest grief, I saw no sooner the bonnet than I was reminded of a helmet; and in that hybrid bonnet, half-helmet, half-jockey cap, did Miss Jenkyns attend Captain Brown's funeral, and, I believe, supported Miss Jessie with a tender indulgent firmness which was invaluable, allowing her to weep her passionate fill before they left.

Miss Pole, Miss Matty, and I, meanwhile attended to Miss Brown; and hard work we found it to relieve her querulous and never-ending complaints. But if we were so weary and dispirited, what must Miss Jessie have been! Yet she came back almost calm, as if she had gained a new strength. She put off her mourning dress, and came in, looking pale and gentle, thanking us each with a soft long pressure of the hand. She could even smile—a faint sweet, wintry smile—as if to reassure us of her power to endure; but her look made our eyes fill suddenly with tears, more than if she had cried outright.

It was settled that Miss Pole was to remain with her all the watching livelong night; and that Miss Matty and I were to return in the morning to relieve them, and give Miss Jessie the opportunity for a few hours of sleep. But when the morning came, Miss Jenkyns appeared at the breakfast-table, equipped in her helmet-bonnet, and ordered Miss Matty to stay at home, as she meant to go and help to nurse. She was evidently in a state of great friendly excitement, which she showed by eating her breakfast standing, and scolding the household all round.

No nursing—no energetic strong-minded woman could help Miss Brown now. There was that in the room as we entered which was stronger than us all, and made us shrink into

solemn awestruck helplessness. Miss Brown was dying. We hardly knew her voice, it was so devoid of the complaining tone we had always associated with it. Miss Jessie told me afterwards that it, and her face too, were just what they had been formerly, when her mother's death left her the young anxious head of the family, of whom only Miss Jessie survived.

She was conscious of her sister's presence, though not, I think, of ours. We stood a little behind the curtain; Miss Jessie knelt with her face near her sister's, in order to catch the last soft awful whispers.

"Oh, Jessie! Jessie! How selfish I have been! God forgive me for letting you sacrifice yourself for me as you did! I have so loved you—and yet I have thought only of myself. God forgive me!"

"Hush, love! hush!" said Miss Jessie, sobbing.

"And my father! my dear, dear father! I will not complain now, if God will give me strength to be patient. But, oh, Jessie! tell my father how I longed and yearned to see him at last, and to ask his forgiveness. He can never know how I loved him—oh! if I might but tell him before I die! What a life of sorrow his has been, and I have done so little to cheer him!"

A light came into Miss Jessie's face. "Would it comfort you, dearest, to think that he does know?—would it comfort you, love, to know that his cares, his sorrows—" Her voice quivered, but she steadied it into calmness.—"Mary! he has gone before you to the place where the weary are at rest. He knows now how you loved him."

A strange look, which was not distress, came over Miss Brown's face. She did not speak for some time, but then we saw her lips form the words, rather than heard the sound—"Father, mother, Harry, Archy;—then, as if it were a new idea throwing a filmy shadow over her darkened mind—"But you will be alone, Jessie!"

Miss Jessie had been feeling this all during the silence, I think; for the tears rolled down her cheeks like rain at these words, and she could not answer at first. Then she put her hands together tight, and lifted them up, and said—but not to us—

"Though He slay me, yet will I trust in Him."

In a few moments more Miss Brown lay calm and still—never to sorrow or murmur more.

After this second funeral, Miss Jenkyns insisted that Miss Jessie should come to stay with her rather than go back to the desolate house, which, in fact, we learned from Miss Jessie, must now be given up, as she had no where-withal to maintain it. She had something above twenty pounds a year, besides the interest of the money for which the furniture would sell; but she could not live upon that; and so we talked over her qualifications for earning money.

"I can sew neatly," said she, "and I like nursing. I think, too, I could manage a house, if any one would try me as housekeeper; or I would go into a shop as saleswoman, if they would have patience with me at first."

Miss Jenkyns declared, in an angry voice, that she should do no such thing; and talked to herself about "some people having no idea of their rank as a captain's daughter," nearly an hour afterwards, when she brought Miss Jessie up a basin of delicately-made arrow-root, and stood over her like a dragoon until the last spoonful was finished; then she disappeared. Miss Jessie began to tell me some more of the plans which had suggested themselves to her, and insensibly fell into talking of the days that were past and gone, and interested me so much I neither knew nor heeded how time had passed. We were both startled when Miss Jenkyns reappeared, and caught us both crying. I was afraid lest she would be displeased, as she often said that crying hindered digestion, and I knew she wanted Miss Jessie to get strong; but, instead, she looked queer and excited, and fidgeted round us without saying anything. At last she spoke,

"I have been so much startled—no, I've not been startled—don't mind me, my dear Miss Jessie—I've been very much surprised—in fact, I've had a caller, whom you knew once, my dear Miss Jessie—"

Miss Jessie went very white, then flushed scarlet, and looked eagerly at Miss Jenkyns.

"A gentleman, my dear, who wants to know if you would see him."

"Is it?—it is not—" stammered out Miss Jessie—and got no farther.

"This is his card," said Miss Jenkyns, giving it to Miss Jessie; and while her head was bent over it, Miss Jenkyns went through a series of winks and odd faces to me, and formed her lips into a long sentence, of which, of course, I could not understand a word.

"May he come up?" asked Miss Jenkyns, at last.

"Oh, yes! certainly!" said Miss Jessie, as much as to say, this is your house, you may show any visitor where you like. She took up some knitting of Miss Matty's and began to be very busy, though I could see how she trembled all over.

Miss Jenkyns rang the bell, and told the servant who answered it to show Major Gordon upstairs; and, presently, in walked a tall, fine, frank-looking man of forty or upwards. He shook hands with Miss Jessie; but he could not see her eyes, she kept them so fixed on the ground. Miss Jenkyns asked me if I would come and help her to tie up the preserves in the store-room; and, though Miss Jessie plucked at my gown, and even looked up at me with begging eye, I durst not refuse to go where Miss Jenkyns asked. Instead of tying up preserves in the store-room, however, we went to talk in the dining room; and there Miss Jenkyns told me what Major Gordon had told her;—how he had served in the same regiment with Captain Brown, and had become acquainted with Miss Jessie, then a sweet-looking blooming girl of eighteen; how the acquaintance had grown into love on his part, though it had been some years before he had spoken; how, on becoming possessed, through the will of an uncle, of a good estate in Scotland, he had offered and been refused, though, with so much agitation and evident distress that he was sure she was not indifferent to him; and how he had discovered that the obstacle was the fell disease which was, even then, too surely threatening her sister. She had mentioned that the surgeons foretold intense suffering; and there was no one but herself to nurse her poor Mary, or cheer or comfort her father during the time of illness. They had had long discussions; and on her refusal to pledge herself to him as his wife when all should be over, he had grown angry, and broken off entirely, and gone abroad, believing that she was a cold-hearted person whom he would do well to forget. He had been travelling in the East, and was on his return home when, at Rome, he saw the account of Captain Brown's death in *Galignani*.

Just then Miss Matty, who had been out all the morning, and had only lately returned to the house, burst in with a face of dismay and outraged propriety.

"Oh, goodness me!" she said. "Deborah, there's a gentleman sitting in the drawing-room with his arm round Miss Jessie's waist!" Miss Matty's eyes looked large with terror.

Miss Jenkyns snubbed her down in an instant.

"The most proper place in the world for his arm to be in. Go away, Matilda, and mind your own business." This from her sister, who had hitherto been a model of feminine decorum, was a blow for poor Miss Matty, and with a double shock she left the room.

The last time I ever saw poor Miss Jenkyns was many years after this. Mrs. Gordon had kept up a warm affectionate intercourse with all at Cranford. Miss Jenkins, Miss Matty, and Miss Pole had all been to visit her, and returned with wonderful accounts of her house, her husband, her dress, and her looks. For, with happiness, something of her early bloom returned; she had been a year or two younger than we had taken her for. Her eyes were always lovely, and, as Mrs. Gordon, her dimples

were not out of place. At the time to which I have referred, when I last saw Miss Jenkyns, that lady was old and feeble, and had lost something of her strong mind. Little Flora Gordon was staying with the Miss Jenkynses, and when I came in she was reading aloud to Miss Jenkyns, who lay feeble and changed on the sofa. Flora put down *The Rambler* when I came in.

"Ah!" said Miss Jenkyns, "you find me changed, my dear. I can't see as I used to do. If Flora were not here to read to me, I hardly know how I should get through the day. Did you ever read *The Rambler*? It's a wonderful book—wonderful! and the most improving reading for Flora" (which I dare say it would have been if she could have read half the words without spelling, and could have understood the meaning of a third), "better than that strange old book, with the queer name, poor Captain Brown was killed for reading—that book by Mr. Boz, you know—Old Poz; when I was a girl—but that's a long time ago—I acted Lucy in Old Poz." She babbled on long enough for Flora to get a good long spell at *The Christmas Carol*, which Miss Matty had left on the table.

CHAPTER III.

I thought that probably my connection with Cranford would cease after Miss Jenkyn's death; at least, that it would have to be kept up by correspondence, which bears much the same relation to personal intercourse that the books of dried plants I sometimes see ("*Hortus Siccus*," I think they call the thing) do to the living and fresh flowers in the lanes and meadows. I was pleasantly surprised, therefore, by receiving a letter from Miss Pole (who had always come in for a supplementary week after my annual visit to Miss Jenkyns) proposing that I should go and stay with her; and then, in a couple of days after my acceptance, came a note from Miss Matty, in which, in a rather circuitous and very humble manner, she told me how much pleasure I should confer if I could spend a week or two with her, either before or after I had been at Miss Pole's; "for," she said, "since my dear sister's death I am well aware I have no attractions to offer; it is only to the kindness of my friends that I can owe their company."

Of course, I promised to come to dear Miss Matty as soon as I had ended my visit to Miss Pole; and the day after my arrival at Cranford I went to see her, much wondering what the house would be like without Miss Jenkyns, and rather dreading the changed aspect of things. Miss Matty began to cry as soon as she saw me. She was evidently nervous from having anticipated my call. I comforted her as well as I could; and I found the best consolation I could give was the honest praise that came from my heart as I spoke of the deceased. Miss Matty slowly shook her head over each virtue as it was named and attributed to her sister; and at last she could not restrain the tears which had long been silently flowing, but hid her face behind her handkerchief, and sobbed aloud.

"Dear Miss Matty!" said I, taking her hand—for indeed I did not know in what way to tell her how sorry I was for her, left deserted in the world. She put down her handkerchief, and said—

"My dear, I'd rather you did not call me Matty. She did not like it; but I did many a thing she did not like, I'm afraid—and now she's gone! If you please, my love, will you call me Matilda?"

I promised faithfully, and began to practice the new name with Miss Pole that very day; and, by degrees, Miss Matilda's feeling on the subject was known through Cranford, and we all tried to drop the more familiar name, but with so little success that by and by we gave up the attempt.

My visit to Miss Pole was very quiet. Miss Jenkyns had so long taken the lead in Cranford that, now she was gone, they hardly knew how to give a party. The Honorable Mrs. Jamieson, to whom Miss Jenkyns herself had always yielded the post of honor, was fat and

inert, and very much at the mercy of her old servants. If they chose that she should give a party, they reminded her of the necessity for so doing; if not, she let it alone. There was all the more time for me to hear old-world stories from Miss Pole, while she sat knitting, and I making my father's shirts. I always took a quantity of plain sewing to Cranford; for, as we did not read much, or walk much, I found it a capital time to get through my work. One of Miss Pole's stories related to a shadow of a love affair that was dimly perceived or suspected long years before.

Presently, the time arrived when I was to remove to Miss Matilda's house. I found her timid and anxious about the arrangements for my comfort. Many a time, while I was unpacking, did she come backwards and forwards to stir the fire, which burned all the worse for being so frequently poked.

"Have you drawers enough, dear?" asked she. "I don't know exactly how my sister used to arrange them. She had capital methods. I am sure she would have trained a servant in a week to make a better fire than this, and Fanny has been with me four months."

This subject of servants was a standing grievance, and I could not wonder much at it; for if gentlemen were scarce, and almost unheard of in the "genteel society" of Cranford, they or their counterparts—handsome young men—abounded in the lower classes. The pretty neat servant-maids had their choice of desirable "followers;" and their mistresses, without having the sort of mysterious dread of men and matrimony that Miss Matilda had, might well feel a little anxious lest the heads of their comely maids should be turned by the joiner, or the butcher, or the gardener, who were obliged, by their callings, to come to the house, and who, as ill-luck would have it, were generally handsome and unmarried. Fanny's lovers, if she had any—and Miss Matilda suspected her of so many flirtations that, if she had not been very pretty, I should have doubted her having one—were a constant anxiety to her mistress. She was forbidden, by the articles of her engagement, to have "followers;" and though she had answered, innocently enough, doubling up the hem of her apron as she spoke, "Please, ma'am, I never had more than one at a time," Miss Matty prohibited that one. But a vision of a man seemed to haunt the

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kitchen. Fanny assured me that it was all fancy, or else I should have said myself that I had seen a man's coat-tails whisk into the scullery once, when I went on an errand into the store-room at night; and another evening, when, our watches having stopped, I went to look at the clock, there was a very odd appearance, singularly like a young man squeezed up between the clock and the back of the open kitchen door; and I thought Fanny snatched up the candle very hastily, so as to throw the shadow on the clock face, while she very positively told me the time half an hour too early, as we found afterwards by the church clock. But I did not add to Miss Matty's anxieties by feeding my suspicions, especially as Fanny said to me, the next day, that it was such a queer kitchen for having odd shadows about it, she really was almost afraid to stay; "for you know, miss," she added, "I don't see a creature from six o'clock tea till Missus rings the bell for prayers at ten."

However, it so fell out that Fanny had to leave; and Miss Matilda begged me to stay and "settle her" with the new maid; to which I consented, after I had heard from my father that he did not want me home. The new servant was a rough, honest-looking girl, who had only lived on a farm place before, but I liked her looks when she came to be hired, and I promised Miss Matilda to put her in the ways of the house. The said ways were religiously such as Miss Matilda thought her sister would approve. Many a domestic rule and regulation has been a subject of plaintive whispered murmur to me during Miss Jenkyns's life; but now that she was gone, I do not think that even I, who was a favorite, durst have suggested an alteration. To give an instance: We constantly adhered to the forms which were observed at such times, in "my father, the rector's house." Accordingly, we had always wine and dessert; but the decanters were only filled when there was a party, and what remained was seldom touched, though we had two wine glasses apiece every day after dinner, until the next festive occasion arrived, when the state of the remainder wine was examined into in a family council. The dregs were often given to the poor; but occasionally, when a good deal had been left at the last party (five months ago, it might be), it was added to some of a fresh bottle, brought up from the cellar. I fancy poor Captain Brown did not much like wine, for I noticed he never finished his first glass, and most military men take several. Then, as to our dessert, Miss Jenkyns used to gather currants and gooseberries for herself, which I sometimes thought would have tasted better fresh from the trees; but then, as Miss Jenkyns observed, there would have been nothing for dessert in summer-time. As it was, we felt very genteel with our two glasses apiece, and a dish of gooseberries at the top, of currants and biscuits at the sides, and two decanters at the bottom. When oranges came in, a curious proceeding was gone through. Miss Jenkyns did not like to cut the fruit; for, as she observed, the juice all ran out nobody knew where; sucking (only I think she used some more respectable word) was in fact the only way of enjoying oranges; but then there was the unpleasant association with a ceremony frequently gone through by little babies; and so, after dessert, in orange season, Miss Jenkyns and Miss Matty used to rise up, possess themselves each of an orange in silence, and withdraw to the privacy of their own rooms to indulge in sucking oranges.

I had once or twice tried, on such occasions, to prevail on Miss Matty to stay, and had succeeded in her sister's lifetime. I held up a screen, and did not look, and, as she said, she tried not to make the noise very offensive; but now that she was left alone, she seemed quite horrified when I begged her to remain with me in the warm dining-parlor, and enjoy her orange as she liked best. And so it was in everything. Miss Jenkyns's rules were made more stringent than ever, because the framer of them was gone where there could be no appeal. In all things else Miss Matilda was meek and undecided to a fault. I have heard Fanny turn her round

twenty times in a morning about dinner, just as the little hussy chose; and I sometimes fancied she worked on Miss Matilda's weakness in order to bewilder her, and to make her feel more in the power of her clever servant. I determined that I would not leave her till I had seen what sort of a person Martha was; and, if I found her trustworthy, I would tell her not to trouble her mistress with every little decision.

Martha was blunt and plain-spoken to a fault; otherwise she was a brisk, well-meaning, but very ignorant girl. She had not been with us a week before Miss Matilda and I were astounded one morning by the receipt of a letter from a cousin of hers, who had been twenty or thirty years in India, and who had lately, as we had seen by the "Army List," returned to England, bringing with him an invalid wife, who had never been introduced to her English relations. Major Jenkyns wrote to propose that he and his wife should spend a night at Cranford, on his way to Scotland—at the inn, if it did not suit Miss Matilda to receive them into her house; in which case they should hope to be with her as much as possible during the day. Of course, it must suit her, as she said; for all Cranford knew that she had her sister's bedroom at liberty; but I am sure she wished the major had stopped in India and forgotten his cousins out and out.

"Oh! how must I manage?" asked she helplessly. "If Deborah had been alive she would have known what to do with a gentleman visitor. Must I put razors in his dressing-room? Dear! dear! and I've got none. Deborah would have had them. And slippers, and coat-brushes?" I suggested that probably he would bring all these things with him. "And after dinner, how am I to know when to get up and leave him to his wine? Deborah would have done it so well; she would have been quite in her element. Will he want coffee, do you think?" I undertook the management of the coffee, and I told her I would instruct Martha in the art of waiting—in which, it must be owned, she was terribly deficient—and that I had no doubt Major and Mrs. Jenkyns would understand the quiet mode in which a lady lived by herself in a country town. But she was sadly fluttered. I made her empty her decanters and bring up two fresh bottles of wine. I wished I could have prevented her from being present at my instructions to Martha, for she frequently cut in with some fresh direction, muddling the poor girl's mind, as she stood open-mouthed, listening to us both.

"Hand the vegetables round," said I (foolishly, I see now—for it was aiming at more than we could accomplish with quietness and simplicity); and then, seeing her look bewildered, I added, "Take the vegetables round to the people, and let them help themselves."

"And mind you go first to the ladies," put in Miss Matilda. "Always go to the ladies before gentlemen when you are waiting."

"I'll do it as you tell me, ma'am," said Martha; "but I like lads best."

We felt very uncomfortable and shocked at this speech of Martha's yet I don't think she meant any harm; and, on the whole, she attended very well to our directions, except that she "nudged" the major when he did not help himself as soon as she expected to the potatoes, while she was handing them round.

The major and his wife were quiet, unpretending people enough when they did come; languid, as all East Indians are, I suppose. We were rather dismayed at their bringing two servants with them, a Hindoo body-servant for the major, and a steady, elderly maid for his wife; but they slept at the inn, and took off a good deal of the responsibility by attending carefully to their master's and mistress's comfort. Martha, to be sure, had never ended her staring at the East Indian's white turban and brown complexion, and I saw that Miss Matilda shrunk away from him a little as he waited at dinner. Indeed, she asked me, when they were gone, if he did not remind me of Blue Beard? On the whole, the visit was most satisfactory, and is a subject of conversation even now with Miss Matilda; at the time it greatly

excited Cranford, and even stirred up the apathetic and Honorable Mrs. Jamieson to some expression of interest, when I went to call and thank her for the kind answers she had vouchsafed to Miss Matilda's inquiries as to the arrangement of a gentleman's dressing-room—answers which, I must confess, she had given in the wearied manner of the Scandinavian prophetess—

"Leave me, leave me to repose."

And now I come to the love affair.

It seems that Miss Pole had a cousin, once or twice removed, who had offered to Miss Matty long ago. Now this cousin lived four or five miles from Cranford on his own estate; but his property was not large enough to entitle him to rank higher than a yeoman; or rather, with something of the "pride which apes humility," he had refused to push himself on, as so many of his class had done, into the ranks of the squires. He would not allow himself to be called Thomas Holbrook, Esq.; he even sent back letters with this address, telling the postmistress at Cranford that his name was Mr. Thomas Holbrook, yeoman. He rejected all domestic innovations; he would have the house-door stand open in summer and shut in winter, without knocker or bell to summon a servant. The closed fist or the knob of the stick did this office for him if he found the door locked. He despised every refinement which had not its root deep down in humanity. If people were not ill, he saw no necessity for moderating his voice. He spoke the dialect of the country in perfection, and constantly used it in conversation; although Miss Pole (who gave me these particulars) added, that he read aloud more beautifully and with more feeling than any one she had ever heard, except the late rector.

"And how came Miss Matilda not to marry him?" asked I.

"Oh, I don't know. She was willing enough, I think; but you know cousin Thomas would not have been enough of a gentleman for the rector and Miss Jenkyns."

"Well! but they were not to marry him," said I, impatiently.

"No; but they did not like Miss Matty to marry below her rank. You know she was the rector's daughter, and somehow they are related to Sir Peter Arley; Miss Jenkyns thought a deal of that."

"Poor Miss Matty!" said I.

"Nay, now, I don't know anything more than that he offered and was refused. Miss Matty might not like him—and Miss Jenkyns might never have said a word—it is only a guess of mine."

"Has she never seen him since?" I inquired.

"No, I think not. You see Woodley, cousin Thomas's house, lies half-way between Cranford and Misselton; and I know he made Misselton his market-town very soon after he had offered to Miss Matty; and I don't think he has been into Cranford above once or twice since—once, when I was walking with Miss Matty, in High Street, and suddenly she darted from me, and went up Shire Lane. A few minutes after I was startled by meeting cousin Thomas."

"How old is he?" I asked, after a pause of castle-building.

"He must be about seventy, I think, my dear," said Miss Pole, blowing up my castle, as if by gunpowder, into small fragments.

Very soon after—at least during my long visit to Miss Matilda—I had the opportunity of seeing Mr. Holbrook; seeing, too, his encounter with his former love, after thirty or forty years' separation. I was helping to decide whether any of the new assortment of colored silks which they had just received at the shop would do to match a gray and black mousseline-de-laine that wanted a new breadth, when a tall, thin, Don Quixote-looking old man came into the shop for some woollen gloves. I had never seen the person (who was rather striking) before, and I watched him rather attentively while Miss Matty listened to the shopman. The stranger wore a blue coat with brass buttons, drab breeches, and gaiters, and drummed with his fingers on the counter until he was attended to. When he answered the shop-boy's question, "What can I have the

pleasure of showing you to-day, sir?" I saw Miss Matilda start, and then suddenly sit down; and instantly I guessed who it was. She had made some inquiry which had to be carried round to the other shopman.

"Miss Jenkyns wants the black sarsenet two-and-twopence the yard;" and Mr. Holbrook had caught the name, and was across the shop in two strides.

"Matty—Miss Matilda—Miss Jenkyns! God bless my soul! I should not have known you. How are you? How are you?" He kept shaking her hand in a way which proved the warmth of his friendship; but he repeated so often, as if to himself, "I should not have known you!" that any sentimental romance which I might be inclined to build was quite done away with by his manner.

However, he kept talking to us all the time we were in the shop; and then waving the shopman with the unpurchased gloves on one side, with "Another time, sir! another time!" he walked home with us. I am happy to say my client, Miss Matilda, also left the shop in an equally bewildered state, not having purchased either green or red silk. Mr. Holbrook was evidently full with honest loud-spoken joy at meeting his old love again; he touched on the changes that had taken place; he even spoke of Miss Jenkyns as "Your poor sister! Well, well! we have all our faults;" and bade us good-bye with many a hope that he should soon see Matty again. She went straight to her room, and never came back till our early tea-time, when I thought she looked as if she had been crying.

(To be Continued.)

Our Heroes.

Here's a hand to the boy who has courage

To do what he knows to be right.

When he falls in the way of temptation,

He has a hard battle to fight.

Who strives against self and his comrades

Will find a most powerful foe.

All honor to him if he conquers,

A cheer for the boy who says "No!"

There's many a battle fought daily

The world knows nothing about.

There's many a brave little soldier

Whose strength puts a legion to rout.

And he who fights sin single-handed

Is more of a hero, I say,

Than he who leads soldiers to battle,

And conquers by arms in the fray.

Be steadfast, my boy, when you're tempt-
ed.

To do what you know to be right.

Stand firm by the colors of manhood

And you will o'ercome in the fight.

"The right," be your battle-cry ever

In waging the warfare of life.

And God, who knows who are the heroes,

Will give you the strength for the strife.

—Phoebe Carey.

A Hundred Years Ago.

A hundred years ago Walter Scott at twenty-six was practising law in Edinburgh, but had already shown his poetical taste by translating German ballads. Burns had just passed away and Scotland was beginning to realize its loss. Edmund Burke also died in 1797. Thomas Campbell at nineteen was in 1797 doing literary work for a publisher and the next year his "Pleasures of Hope" was announced by the same house. Charles Lamb at twenty-two was a commercial clerk with a literary taste, and in 1797 ventured to print some poetry, little dreaming of the coming fame of "Elia." Tom Moore also made his debut in print in 1797, being only nineteen, but he was even then versifying "Anacreon." Coleridge wrote the "Ancient Mariner" in 1797, and the same year he and Words-

worth planned their joint volume of poems. It was a failure which Wordsworth ascribed to the "Ancient Mariner," which, as he said, "No one could understand." Wellington at twenty-six was Colonel Wellesley and had been ordered with his regiment to India, while Nelson had just been knighted for his naval gallantry. Goethe and Schiller were the literary lights of Europe, and the former in 1797 produced the most perfect of his minor works, while France the same year had guillotined most of its litterateurs as well as scientists, but Mme. de Stael, banished from Paris by Napoleon, was improving her retirement by producing those works which rendered her the most popular French author of that day. On this continent Lyman Beecher, father of all the Beechers, and son of a New Haven blacksmith, graduated at Yale in 1797, and the next year, having become a preacher, married the gifted Roxanna Foote, but how little did this young couple imagine the future greatness of their children.

Women Who Should Not Marry.

The woman who expects to have "a good, easy time."

The woman who buys for the mere pleasure of buying.

The woman who thinks it is cheaper to buy bread than to make it.

The woman who marries in order to have somebody to pay her bills.

The woman who would die rather than wear a bonnet two seasons old.

The woman who wants things just because "other women" have them.

The woman who stays at home only when she cannot find a place to visit.

The woman who reads cheap novels and dreams of being a duchess or a countess.

The woman who thinks she is an ornament to her sex if she wins at a progressive euchre prize.

The woman whose cleanliness and order extends no further than the front hall and the drawing room.

The woman who buys bric-a-brac for the parlor and borrows kitchen utensils from her neighbors.

The woman who does not know how many cents, halves, quarters, dimes and nickels there are in a dollar.

The woman who cares more for the style of her winter cloak than she cares for the health and comfort of her children.

The woman who thinks embroidered centre pieces and "doylies" are more necessary than sheets, pillowcases and blankets.

There are certain books which no man can read without being a larger and wiser and better man. The greatest books are those which do not need anything outside of themselves for their interpretation. They are the books which live on and on without any reference to the time in which they were written. They are written at any time for all time.

The poorest girls in the world are those not taught to work. There are thousands of them. Rich parents have petted them, and they have been taught to despise labor and to depend upon others for a living, and are perfectly helpless. The most forlorn women belong to this class. Every daughter should learn to earn her own living, the rich as well as the poor. The wheel of fortune rolls swiftly around; the rich are likely to become poor, and the poor rich. Skill added to labor is no disadvantage to the rich, and is indispensable to the poor.—Young Woman.

That's Baby.

Two bright eyes

Looking into mine,

Two tiny arms round

My neck to twine;

That's baby.

One rosebud mouth

For mother's lips to kiss,

One pug nose

On a cunning little miss;

That's baby.

Two little feet

Running up to me,

Bringing her treasures

For mother dear to see;

That's baby.

Two little hands

Folded in prayer,

Kneeling by mother

Free from every care;

That's baby.

What Success Means.

Chauncey M. Depew has not only in his speeches but in private talks made many observations upon success, and they are all good. Said he in a recent speech "As an employer of 35,000 men, in a sort of positions, I wish to say that my experience leads me to believe that the men who fail to succeed fail because they do not grasp the opportunities before them. I went into the office of one of the great lawyers of New York and said to him, 'You are working yourself to death' and he replied, 'I know it, and will tell you why. It is because every one in the room full of clerks is watching to see when I go out, so that he can fool away his time, or watching the clock for the hour to quit work. If there were a single one who would take a case and work on it all the afternoon, and into the evening and night, if necessary, as I did, I would make him my partner, but there is not one; I am working myself to death.'"

You can't tell a man by his clothes, but you can generally judge a woman by her kitchen.

If you wish to be miserable you must think about yourself, about what you want, what you like, what respect people ought to pay you, and then to you nothing will be pure. You will soil everything you touch: you will make sin and misery of yourself out of everything which God sends you; you will be as wretched as you choose.

The wild oats sowing may be forgiven or repented of, but many a man has been cured by the inevitable harvest of ruin, health, impaired vitality, shattered ambitions. Many a man sees daily the revelation of his sin in the ghastly reproduction of a son's career. Hell is on both sides the tomb. Sow to sin and reap destruction. Sow to righteousness and reap righteousness.

Mark Twain has a system by which he thinks that any ambitious young man can get employment. He believes that an applicant should stand entirely on his merits, and at the start should work for nothing. Any employer is glad to give good assistance for nothing, and when the applicant shows he has ability it will not long before his services will command a salary. Mark's theory is all right. Lots of people would be better off working for nothing than not working at all, and the merit is bound to win in the end. The trouble is with most young men that they want to start in too high. They think too much of the pay and not enough of the excellence of their work.